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AVOIDABLE DISASTERS*

BY

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We spend our student years being taught exact diagnosis and correct treatment; then we go out into practice and begin to learn from our mistakes. To err is human, and it is easy to be wise too late; yet how much happier it is for us all, and for our patients, when we can manage to be wise in time, learning from the mistakes of others to avoid some at least of our own.

Acute Pyogenic Infections

There is all the difference between making and missing the early diagnosis of acute pyogenic osteitis or arthritis. This throws a great responsibility on the general practitioner, who is at a disadvantage in that he naturally dislikes alarming parents unnecessarily, and is therefore inclined to diagnose rheumatism tentatively, and to try salicylates. Yet delay is so dangerous that, if his suspicions are aroused, prompt consultation or dispatch to hospital is wise; for the surgeon, guided by his greater experience of this fell disease, is anxious, and often able, to make the diagnosis at a time when there is opportunity for early relief of tension in the acutely inflamed bone or joint. In acute osteitis the initial focus is commonly in the cancellous bone close to the epiphyseal disk, and if it can be discovered and drained, a limited operation may prevent a disastrous spread to the medulla or the joint.

When the disease starts in the medulla its early diagnosis is even more difficult, for its signs and symptoms are less definite; yet it can be made.

In 1929 I saw a boy within twenty-four hours of the onset of his symptoms. He had a high temperature, with severe pain in his thigh, though, as is common where the inflammation is endosteal, neither the pain nor the tenderness was localized. There was widespread tenderness of the femur, rather greater in the upper half than in the lower. The hip was almost fixed by muscular spasm, but not swollen or tender to direct pressure.

Believing in the primary need for relief of tension, I first tried precautionary aspiration of the hip, but drew blank, as I expected. I then drilled a series of 1/4-inch holes into the femoral medulla, starting in the middle and proceeding upwards to include the lower part of the upper metaphysis at intervals of about one inch. From the first two drill-holes blood or bloody fluid gushed out under pressure; from the others it welled up at a normal rate. *Staphylococcus aureus* was cultivated from the femoral fluid and the blood. The patient had a week of severe fever and illness, but there was no sequestration, and the end-result was perfect.

The doctor, by his promptitude in bringing the boy, had averted the disaster of extensive infection and necrosis of the femoral diaphysis. This was of immense local significance; but something even more vital was involved. The operation eliminated a major septic focus which would otherwise have been the *source of a massive and persistent flow of cocci into the blood.*

As a contrast I would like to mention the case of a man aged about 30, who had his thigh shattered in air combat in the war. Sepsis followed, but ultimately the thigh healed. Some years later he became suddenly ill, with severe pain in his thigh. Here again the pain, though severe, was ill defined, but in this case it was labelled sciatica, and the patient was treated for two days by morphine. As a result of the sepsis and the unrelieved pressure within the bone extensive necrosis and sequestration followed, with long-continued illness.

Extensive necrosis and sequestration is indeed characteristic of acute endosteal osteitis, and is, I believe, due to a combination of toxins and pressure within the medulla, for the pressure quickly becomes great enough to limit circulation and to prevent further diapedesis. Thus the living tissues within the bone are attacked by sepsis, starved of circulation, and cut off from the protective reinforcement of the leucocytes. Sepsis runs riot in the ischaemic field.

Acute pyogenic arthritis presents an emergency almost as critical, for here again bacteria thrive under a pressure which is harmful to the living tissues. The bactericidal synovial fluids soon become stagnant and inert, changing from fresh exudate, lethal to the organisms, into a culture medium favourable to their growth. Early, and if necessary repeated, aspiration relieves pressure, removes the stale fluids, and promotes fresh active bactericidal exudation. Where the bacteria are virulent, and in particular where a juxta-articular bone focus is a persistent source of reinfection, drainage may be necessary.

But once the pus leaks out of the joint and spreads upwards and downwards in the intermuscular planes the outlook alters altogether, and becomes rapidly more serious.

A few months ago a doctor rang up to tell me of a boy who had had pain in his knee and a high temperature for five days. He had originally regarded it as rheumatism. I removed the patient to hospital for operation with the utmost speed, but it was very late. The boy was desperately ill, and there was pus not only in the joint but spreading round the femur far up the thigh. Only by immediate amputation was there any prospect of saving the boy's life. After a stormy time he did well, and is now walking on a provisional limb.

There is, of course, a kinship between acute rheumatism and acute sepsis, but the distinction can usually be quickly made. First, the clinical picture of acute pyogenic infection of a joint is different from that of acute rheum-

* A British Medical Association Lecture delivered to the Ayrshire Division on October 23rd, 1935.

atism. In the one case there is acute illness, with a high, or very high, temperature, a hot dry skin, a bounding pulse, and intense pain confined to one limb. In acute rheumatism, on the other hand, the illness is more general, less sudden and severe, and the pain is less intense and more widespread. It is also, of course, characteristic of rheumatism that it does not remain monarticular ; but I would urge that the diagnosis should be made, or at least consultation sought, without waiting to see whether other joints will become affected. Incidentally, it is worth remembering that an acute monarticular rheumatic arthritis associated with a temperature of 101° F. or more is a very great rarity.

Compound Fractures

We now know the vital importance of early and thorough wound toilet of compound fractures, other than those in which there has been a brief perforation of the skin from within by a sharp fragment of bone. A frank compound fracture should be regarded as an emergency comparable to that of gastric perforation or the rupture of an ectopic gestation, and demanding immediate and expert operation. For we know that only within the first brief hour or two is it practicable to excise all the devitalized and infected tissues so effectually that the wound and the fracture can be relied upon to unite without delay or sequestration. If this fleeting opportunity is lost the infection will have spread in the tissues beyond all reasonable surgical reach. These are, indeed, cases in which prompt expert operation can stave off disaster. I need not mention the necessity of the administration of anti-tetanus and anti-gas-gangrene sera to avoid the risk of even greater disasters.

Failures in Diagnosis of Fractures

The Wrist.—Fractures may simulate sprains. Without *x*-ray examination a fractured scaphoid is commonly missed. Even after *x*-ray examination, unless an oblique view has been taken—perpendicular to the long axis of the scaphoid—a transverse fracture of its waist is not always perceptible.

The Hip.—An impacted fracture of the neck of the femur may easily be mistaken for a severe bruise. For a few hours, even a day or more, after such a fracture the patient may be able to hobble, but unless the fracture is discovered and protected it will come adrift in the process of absorption of the crushed impacted trabeculae by the living bone on either side. Patients dislike coming apart without warning! It is an awkward situation which can be avoided by an accurate clinical examination and *x*-ray confirmation of fracture.

The Elbow.—I have recently seen several cases in which a fracture of the ulna has been associated with forward dislocation of the head of the radius. In two instances the dislocation, much the more serious lesion, was missed because attention was concentrated on the fracture. This was unfortunate because, with the orbicular ligament torn, stable reduction of the radial head and good ultimate radio-ulnar mobility depend on early and accurate reduction of the dislocation, and this in turn depends on perfect anatomical restoration of the ulna.

The Shoulder.—The importance of a thorough *x*-ray investigation of all injuries of the shoulder in which fracture is reasonably possible cannot be over-emphasized. The radiographs should be taken in two planes or, where that is impossible, they should be stereoscopic. Then follows a very careful scrutiny of the films by the radiologist, and, later, by the doctor, who can correlate the *x*-ray evidence with that of his own hands and eyes. Incidentally, I do not think it is fair to place all the responsibility of diagnosis on the radiologist, who has to deal with shadows while we have the substance.

A patient at present in my care had a hunting accident in February, 1935, which involved serious injury to the shoulder. A fracture of the great tuberosity was diagnosed, but, despite stereoscopic radiographs, a posterior dislocation of the shoulder was missed. Before coming to me in June he had seen various people and been manipulated by a bone-setter, but the posterior dislocation remained. He had a painful and almost useless shoulder. Both stereoscopic and axillary radiographs demonstrated the posterior dislocation, but now in addition there was much new bone formation round the joint, which had probably been aggravated by the ill-advised manipulation. Quite apart from this extensive pericapsular bone formation, the long-established dislocation gave rise to extreme difficulty in reduction, in retention of reduction, and in restoration of active movement.

The reduction, coupled with the removal of the pericapsular bone, necessitated a very extensive operation: altogether the lack of exact diagnosis has involved the patient in a severe and prolonged disability.

The Spine.—Quarries and coal mines, hunting, racing, and the roads provide a stream of crush fractures and fracture-dislocations of the spine. Their transport to hospital is critical, but outside my scope. While there is little likelihood of a fracture-dislocation of the spine being missed, a crush fracture may easily escape recognition if concussion or some other severe injury is attracting a great deal of attention.

I have seen two examples of undiagnosed spinal fractures within the last two months. In one a medical student turned a corner too fast on his motor cycle, and was taken to hospital with concussion and a broken collar-bone. For these injuries he was adequately treated, but although he complained about his back it was not *x*-rayed. In the second instance a woman who had been thrown from her horse remained in hospital for three weeks, and was then sent home rather in disgrace for persistent complaints about her back. Here again no radiographs were taken, yet in both cases fractures urgently requiring treatment should have been discovered.

The value of lateral as well as antero-posterior radiographs of the spine can hardly be over-emphasized ; for a crush fracture of a body with wedging or the detachment of an anterior angular fragment is seldom clearly visible in an antero-posterior view.

X-Ray Confirmation of Reduction

I often see fractures in which the diagnosis has been made by radiographs, but no radiographic confirmation of reduction has been made, with the result that malunion has been allowed to take place. Such economy in the use of radiographs is mistaken.

X-Ray Confirmation of Union

Before *x* rays were discovered certain periods were adopted for the splinting of the various fractures. In practice these periods were checked by careful examination by all who were wise by nature or had become so by bitter experience. For union does not take place at a uniform rate ; there are many variable factors, such as the site, the degree and extent of damage to the bone, and the impairment of its circulation. Nowadays radiographs are available to present the facts. Nevertheless within the last year or two three patients have been passed on to me with malunion and four-inch shortening of the femur. In each case this has been due to the limb having been taken off the Thomas splint too early, owing to reliance having been placed on a time period rather than on *x*-ray evidence of union.

In children with mid-shaft fractures of both forearm bones consolidation is slow. Secondary deformity is very liable to occur if, after the splintage has been removed, the wrist is supported by a sling, but there is relatively little danger when the arm is allowed complete freedom. Probably it is wise to keep the forearm in a light plaster until the limb can be set free.

Splints

The use of splints is a fascinating and dangerous art. When applied to fractures their object is to immobilize part of a limb in comfort with free circulation, particularly round the fracture, and without hampering the active function of any part which can be safely used.

Splints used to be made of wood, but they never fitted the limb. They could be used by expert craftsmen, but involved many needless difficulties and dangers, of which the most obvious was their tendency to make the limb fit the splint! One of the worst of these old splints was the "internal angular," which I hope and believe to be extinct. Another is a slat of wood to which the forearm and hand was supposed to be applied ; this also is becoming very rare. Of course, for fractures of the leg the traditional wooden back splint and foot-piece with two side splints is handy, and by deft padding can be made to fit any leg to an upholsterer's satisfaction, but I have seen every sort of trouble follow its use in difficult fractures.

I think we should now banish altogether every wooden splint, except, perhaps, short pieces of Gooch splinting. With plaster-of-Paris, the Thomas splint, and the collar-and-cuff one can do almost everything. Plaster can be fitted accurately to the shape of the limb, as it is or as you want it to be. Plaster can be moulded not only to fit, but to provide just that degree of support which every part needs. In a recent fracture it should seldom, if ever, be completely circumferential, although it is perfectly correct to apply a plaster completely if one divides it longitudinally right down to the padding over the whole length of the splint. Where there is padding this is easy, and in skin-tight plasters a strip of wool may be placed over the line of the cut to protect the skin.

One great virtue of the plaster accurately moulded to its holds is that neighbouring parts can be left free for function which would, with less accurate fitting, have to be immobilized. For instance, in every forearm fracture the thumb and fingers can be free for active use—a point of supreme importance. Almost all the bad or delayed results in these fractures are due to one or more of the following mistakes:

1. The splint or plaster is put on too tightly, or becomes too tight owing to internal swelling.
2. Splints are taken off too soon, with the idea that massage and mobilization are necessary—at the cost of secondary displacement.
3. Splints are so extensive that they interfere with the active function of the hand.
4. Incomplete reduction.

Delayed union and malunion will be avoided if the plaster is accurately moulded but remains capable of expansion to meet the needs of internal swelling, allows free movement of the thumb and fingers, and—given this vital factor—is kept on until the danger of secondary displacement is over ; for there is no indication for massage and passive movements provided that the reduction is complete and the thumb and fingers are freely used. With a comminuted Colles fracture which has been accurately reduced and suitably splinted there is no danger of leaving the plaster on too long, but a distinct danger of taking it off too soon. The following instance illustrates many faults.

A few months ago I saw a woman aged 50 who had had a Colles fracture two and a half months previously. She still complained of a great deal of pain and almost complete loss of movement and power in the hand, and the history illustrated almost every known mistake in the treatment of a fracture. Her doctor had (1) made a half-hearted attempt to set her fracture without an anaesthetic ; (2) never corrected the deformity ; (3) put her up in wooden splints which were so long that they reached the tips of her fingers, entirely preventing any active movement of any part of her hand, and so tightly applied that she soon began to suffer great pain ; and (4) kept the whole forearm and hand constricted and immobilized for nearly seven weeks. He omitted one mistake: he did not take her splints off too soon—apparently because he preferred to put on splints that were too big, bind them on too tight, and leave them on undisturbed in spite of the patient's pain.

Sometimes patients are quite innocently at fault, for after a fracture they are prone to expect pain and to bear it without complaint. But pain persisting or recurring after a fracture has been set and splinted is a danger signal. It commonly indicates movement at the fracture from inadequate splintage, or pressure from internal haemorrhage, tight bandaging, or badly fitted splints. Pain caused by inadequate splintage is usually intermittent, but the pain due to pressure is constant ; it is ill defined if due to widespread compression, or localized if due to a pressure point. In each instance it is a cry for relief. We should therefore instruct our patients to mention pain promptly and our nurses to report it without delay ; then comes our responsibility to make sure of our ground before ordering morphine, for morphine is no remedy for any of these ills.

Ischaemic Contracture

It is of vital importance to realize that the pressure can be external or internal or both combined, and that in the elbow the anatomical relations are such that ischaemic contracture can develop from internal pressure alone, without any external control by splint or bandage, and even with the elbow below a right angle. In such cases multiple division of the deep fascia to lessen the subfascial pressure is the essential need. In injuries of the elbow in children one safeguard should always be observed: the doctor should never leave the patient unless the radial pulse is present and the hand is warm, of good colour, and free from pain. Further, the most stringent instructions must be given as to the need for immediate action if any of the danger signs should appear later as a result of reactionary swelling. I feel strongly on this subject, as I have seen eighteen cases of Volkmann's ischaemic contracture in the last fifteen years—disasters due to lack of appreciation of these points. Of these, fourteen followed supracondylar fractures, two fractures in the neighbourhood of the wrist, and two fractures in the neighbourhood of the ankle. The contracture can develop fully in a very short time ; when this has happened the elasticity and power of the muscles are permanently lost.

One of the most tragic cases was that of a boy aged 11, who fell while swinging on a lamp post. He had a supracondylar fracture, and was taken to hospital. The surgeon of the week manipulated the fracture, put the elbow up in flexion, and then went into the theatre. But on revisiting the ward at the end of his operations he found that ischaemic paralysis was present. In this case flexion of the swollen elbow was the fault. I saw the boy two months later. He had complete paralysis of the median and musculo-spiral nerves, fixed flexion of the elbow, and claw-hand with trophic sores on his fingers. Everything possible was done, but five years later the hand and arm were still utterly useless, and

trophic sores were so persistent that amputation became inevitable.

Another instance was a boy, aged 6, who by the time I saw him had Volkmann's contracture with complete paralysis of his median, ulnar, and musculo-spiral nerves. In his case the surgeon had undertaken repeated manipulations.

I have already indicated the line of safety. The first care must be the circulation of the limb, and it is sometimes wise to wait a day or two before attempting reduction of the fracture. For it is indeed fruitless to reduce a supracondylar fracture until one can put the elbow in flexion above a right angle. Furthermore, if manipulative reduction under full anaesthesia has been tried once and failed, I am wholly in favour of avoiding further manipulation, because I think it far safer to operate, and thus attain the three objectives of evacuating the haematoma, safeguarding the neuro-vascular bundle, and reducing the fracture accurately. Then, in taking the confirmatory radiograph, great care should be exercised to avoid external rotation of the lower fragment, which easily occurs if the elbow is raised by the forearm rather than by putting one's fingers under the lower third of the arm.

Arterial Embolism

There is seldom any opportunity of relieving primary ischaemia due to some defect in or damage to the arterial supply of a part, but the sudden embolism of the main artery of a limb requires immediate recognition if disaster is to be avoided. Jefferson published an admirable article on arterial embolectomy (*British Medical Journal*, 1934, ii, 1090). I have recently operated on a man aged 71 with embolism at the bifurcation of his left femoral artery. His doctor had made the diagnosis immediately, giving me a most urgent call, and the patient has done very well.

Some other Disasters

The following is a remarkable instance of ignorance and fraud on the part of a bone-setter on whose diagnosis and treatment the patient most foolishly relied.

A woman consulted a well-known bone-setter in London about her knee. He examined her, told her a cartilage was out, and "put it in" without an anaesthetic. She was no better. A week or so later he stated that an anaesthetic was necessary. She submitted, but woke up from the anaesthetic with her leg in plaster, and was told that it had "turned out to be not a misplaced cartilage but a fracture," but that when the plaster was taken off in six weeks' time she would be all right. When the plaster was taken off her knee was useless. He told her that massage was necessary, so it was started; but on the advice of the masseuse she came to see me. An *x*-ray examination revealed carcinoma of the upper end of the tibia, with pathological fracture.

Referred Pain and Tuberculosis of the Adult.—I am almost ashamed to mention the long-familiar danger of failing to recognize that a pain referred to the abdomen may arise from the back. Yet I have recently seen a patient with spondylolisthesis, and from time to time have seen patients with Pott's disease, who have had abdominal operations carried out without relief of their referred pain. To treat such cases over long periods as rheumatic is even more common. Furthermore, tuberculosis of the hip in middle or old age is rare, and is very likely to be regarded as osteo-arthritis until an abscess appears.

Insidious Deformity.—Dangerous optimism is common in regard to the deformities of children. It seems legendary that children will "grow out of them," but in fact they seldom do. It requires a good deal of experience to distinguish those that will get right from those that will not.

Delay in obtaining expert opinion may be disastrous, particularly in regard to congenital dislocation of the hip, where the earlier the diagnosis the more nearly perfect the result will be. We know that any anatomical misfit of the hip means great trouble later on. Danger lurks in the painlessness of the deformities of childhood. They appear negligible, but they increase insidiously, and the opportunity of their cure slips by. Years afterwards, when supple tissues have grown stiff and articular cartilage has worn thin, the tiring muscles ache, and then even relief may be hard to attain.

Infection of a Tuberculous Cold Abscess.—An iliac or psoas abscess may be the first discovered sign of disease of the spine, sometimes indirectly after having been mistaken for a hernia. A more common error is to open such an abscess unnecessarily; but occasionally, even after expert treatment of the patient and the lesion from which it arises, a cold abscess may have to be drained. Yet its pyogenic infection can be avoided, and it is, I believe, more than three years since a tuberculous sinus has become infected in the Wingfield-Morris Orthopaedic Hospital. Bacteria may find access from the neighbouring skin from careless or insecure dressings, or from the mouth of the dresser. After the first few days a tuberculous sinus discharges little, and needs dressing only once or twice a week, but the dressing must be ample and firmly secured, and applied with strict aseptic and antiseptic technique. The nurse who dresses the sinus wears a mask, and the skin round the sinus is painted with a mixture of equal parts of 5 per cent. crystal violet and 5 per cent. brilliant green in spirit. If rigid precautions are taken infection will not occur; they are well worth while, for a purely tuberculous sinus will soon heal if the lesion and the patient are rightly treated.

Danger of the Obvious.—It is dangerous to be more interested in form than function, for we may be misguided enough to operate on an obvious deformity, only to find that the underlying source of trouble is made worse rather than better by our treatment. Hallux valgus is often merely the obvious sign of a spreading fore foot and the harbinger of metatarsalgia. In such cases, to remove the first metatarsal head is to take away a part with most valuable weight-bearing capabilities, throwing on the second and third metatarsal heads weight which they are quite unfitted to carry. Unhappy results are only too common.

The Line of Least Resistance.—This may prove an unfortunate path to follow.

Some years ago I saw a girl aged 16 with an awkward gait and limitation of movement in both hips. Radiographs revealed symmetrical and most unusual lesions of the heads of her femora. In the course of an examination I discovered that she was a pseudohermaphrodite. She had bilateral operation scars, left by operations four or five years before at a distant hospital. I made inquiries from this hospital, and discovered that the operations were for double femoral hernia, but that the "sacs" had turned out to be solid. They had been removed, and on microscopical examination had been found to be testicles. Nothing more was said or done, and the patient left the hospital.

There were two unfortunate sequelae: first, the femoral lesions, probably associated with bilateral orchidectomy at 11 years of age; and, secondly, since the doctor took the line of least resistance, "Mary" was allowed to remain "Mary," whereas her character and interests were those of "John." The next four or five years were ill spent. Her people were innocently trying to make "Mary" help in the home, while "John" was always slipping round the corner to join the boys at football! After thorough psychological investigation it was clear that a change was indicated. So "Mary" left her village and "John" started life elsewhere. He is now a carpenter in good work, and writes most cheerfully.

RADIOLOGICAL EXAMINATION OF STOMACH AND DUODENUM

WITH SPECIAL REFERENCE TO THE EARLY DIAGNOSIS OF CANCER *

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In this paper I shall discuss some of the problems inherent in radiological investigation, particularly of the stomach and duodenum, not only from the diagnostic and technical viewpoint, but also as they involve the interrelationship of patient, physician, and radiologist.

"Physician" and "Radiologist"

It might be expedient before proceeding further to define these two terms in the sense in which they are used throughout this paper. The word "physician" is applied generically to embrace the medical man or men, whether general practitioner, consultant physician, surgeon, or other specialist, in charge of the patient referred for radiological examination; "radiologist" denotes the man or group of men charged with carrying out such investigation.

It must be appreciated, however, that one of the essential attributes of a radiologist is that he be also a physician and pathologist. Besides being specially skilled in a highly technical method he must command an unusually extensive knowledge of disease and medicine in general, and, in particular, of the radiological manifestations of macroscopic pathology. He must be, above all things, a clinician, using as his main weapon what is undoubtedly the most powerful instrument of investigation yet discovered, but, at the same time, collating his findings with all other available clinical data.

This latter process should be transacted, where possible, in collaboration with the physician, though, owing to geographical and other obstacles, this may not always be practicable. In these more enlightened days the advantage of such consultation between physician and radiologist is becoming generally recognized. Not every investigation calls for it. The all too frequent advanced gastric carcinoma and the obvious peptic ulcer are instances, within the limited sphere of this paper, in which the radiological evidence is in itself decisive. Though even here questions such as that of operability may well merit discussion.

Value of History and Clinical Findings

Many cases, however, exhibit equivocal *x*-ray signs, which demand the fullest interchange of views between the physician and radiologist and consideration of all relevant facts. Indeed, my associates and I frequently feel justified in getting into personal touch with the physician referring the case, intimating that we do not wish to issue any formal report in writing until after such consultation has taken place. Moreover, without this interchange of views and discussion of the case from all aspects, the radiologist's report is likely to be either too determinate and confident, in the positive or negative sense, or too cautious and non-committal, and so of little use to the physician.

It may be asserted as a general principle that, whether it is possible or not for such consultations to take place, the radiologist should be fully informed by the physician as to what is already known, and should be free to amplify this by his own interrogation of the patient, or otherwise, as by physical examination. It is just as unreasonable to ask the radiologist to make a diagnosis without a full knowledge of the history of the case and other clinical facts, as it would be, in these days, to expect the physician to do so without the *x*-ray findings. Also the radiologist should not be limited by too precise instructions as to the extent of his investigation. I have known cancer of the transverse colon to be missed because the case was referred as probably a gastric carcinoma and I was instructed to examine the stomach and duodenum only. Many similar instances have been reported. The late Sir Richard Stawell, at a congress in Sydney a few years ago, said: "The proper attitude towards the radiologist is to treat him as a consultant; to put fully our problem to him and ask him to help us in whatever way he may think best; not to dictate to him what to do and still less how to do it." I cannot vouch for the exact words, but I can vouch for the exact sense, as the statement was a rejoinder to my own plea made in open congress for just this freedom of action.

Another way in which the physician (and especially the surgeon) can collaborate with the radiologist, to the great ultimate benefit of all concerned, is by advising the radiologist as to the confirmation or otherwise of the *x*-ray diagnosis by subsequent events, especially the operative or post-mortem findings. The radiologist must also help himself by embracing every opportunity of following up cases to the operating theatre, the pathological department, and the post-mortem room, and his colleague should assist by notifying him of these occasions.

Necessity for Re-examinations

That further investigation may be indispensable in certain cases is not sufficiently recognized. The fluoroscopic observations must be correlated with the appearances seen in the corresponding films. The latter cannot be subjected to the necessary meticulous scrutiny until dry. Moreover, where a number of radiologists are working together as a team, consultation between them may be considered advisable even before discussing the findings with the physician. By this time the patient frequently has quitted the scene. Where ultimately there is even a shadow of doubt about a case, the patient should return for further and more detailed study, if necessary by special methods.

The question of expense may be raised, but it must be remembered that the stakes are high, that frequently the patient's life may be in jeopardy.

The Difficulties of the Radiologist

Many perplexities beset even the most competent radiologists, and this to a superlative degree in the search for early pathological changes in the gastric wall among the latter's highly irregular and multitudinous mucosal folds or rugae. Though mainly of interest to the radiologist, it were well that the physician had cognizance of the technical difficulties involved. The more the physician knows of the troubles encompassing the path of the radiologist, the better for the mutual understanding between the two; just as it is essential for the radiologist to appreciate the problems confronting the physician in regard to the patients he sends for examination, and to realize for what help he is appealing.

To the same end it should also be remembered by the physician that an *x*-ray report represents a human opinion and not a machine-made diagnosis. The knowledge, experience, and clinical acumen of the radiologist are everything. Without these the machine, the *x*-ray apparatus, impressive though it may appear to the uninitiated, is

* Read in opening a discussion in the Section of Radiology and Radiotherapeutics at the Annual Meeting of the British Medical Association, Melbourne, 1935.

worse than useless. It must then be recognized that the radiologist, in common with his other colleagues and the rest of the human race, is subject to human fallibility. He must make his mistakes, especially when overloaded with work, and more particularly when early reports are demanded, probably when he is mentally tired and there is no time for reflection and quiet consideration of the cases. Many of these errors could be eliminated, especially by giving the radiologist more opportunity for consultation, and for re-examination of the patient, if desired, and more time for his final review and the evaluation of his collected data.

The Outstanding Problem: The Earlier Diagnosis of Cancer

The most frequent of all malignant processes is gastric carcinoma, and its most trustworthy method of detection is the Roentgen ray. It is the universal experience of radiologists, however, that among the many cases they have demonstrated the number of really small carcinomata has been almost infinitesimal. The majority of gastric cancers when first seen are so far advanced that they readily could have been detected had they been an eighth, a sixteenth, or, in some cases, perhaps a hundredth of their observed size.

It is difficult to translate this into terms of time. Cancer of the stomach is not a thing that one sits down to and watches grow. A few cases, however, have been reported where early carcinoma has been seen or suspected and the initial radiological evidence not considered conclusive enough to warrant laparotomy. Berg[1] quotes one which he first demonstrated when, as estimated by him, the growth was "the size of a thumbnail." Six months later, at operation, it was as large as "a goose's egg." The patient died a year later.

Where the clinical histories of gastric carcinoma cases have been analysed, it has been found possible to divide the latter into two main groups: (1) those in which the symptoms have arisen recently and suddenly in previously apparently healthy persons; and (2) those in which there has been dyspeptic trouble over a long period of time. It is estimated that there are five or six patients in the first group to every one in the second.[2] Other figures[3] show that by the time the cases reach the surgeon, which practically corresponds to that of the *x*-ray demonstration of the presence of cancer, about 50 per cent. are obviously inoperable, and of the other 50 per cent., where laparotomy appears to be justified, it is found impossible, in one-half of the instances, to resect the growth. If these figures are approximately correct they indicate that, under present conditions, in only about one-quarter of the cases of cancer of the stomach is there, at the time of discovery, any chance of cure.

The crux of the situation would seem to be primarily the latent period between the initiation of the malignant process and the onset of symptoms, at an estimate of which there seems to be no way of arriving; and, secondly, the difficulty of getting the patient to the physician with the least possible delay. The latter factor is intimately bound up with the problem of the education of the public in the matter, its advisability or otherwise, and is outside the scope of this paper. It might be mentioned, however, referring to the major group with sudden onset of symptoms, that estimates have been published[2] showing that the average interval between such onset and the *x*-ray examination (or operation) is approximately eight to ten months. It would appear, therefore, that here there is precious time to be saved, time that might make all the difference between possible cure and hopeless inoperability.

Radiological Detection of Early Cancer

This is altogether a different problem from that of the early diagnosis of cancer, just discussed. The main factors in regard to the latter are those of getting the patient to the physician, and from the physician to the radiologist, with the least possible delay. The radiological discovery and demonstration of early cancer, on the other hand, is a technical problem for the radiologist, involving the ascertaining of its earliest recognizable radiological signs, and the devising of apparatus, methods, and procedures for observing and recording such changes.

Peristalsis: Its Disturbance as an Early Sign of Cancer

As the practice of radiology advanced and equipment improved, the search for, and demonstration of, direct evidence of organic lesions of the stomach met with more and more success. The result, however, tended towards neglect and forgetfulness of the various indirect signs and functional disturbances that were exploited so ably by many of the earlier masters of the art.

In the primary stages of carcinomatous involvement there may be nothing beyond narrowly limited infiltration of the stomach wall by cancer cells with localized induration. During peristaltic action this area tends to remain fixed in shape. The peristaltic wave jumps it. Single films, each made with the patient in a different position, can fail entirely to demonstrate this phenomenon. It is easily missed at fluoroscopic examination. One method of demonstrating it[4,5] is by taking a series of films at short intervals with the patient's posture unaltered. Careful comparison of tracings of the various films may then show one particular section (usually in the lesser curvature) presenting a stereotyped, fixed, or straight line appearance.

All stages may be observed from the earliest local invasion, disclosing itself only by one small area not entering into the peristaltic wave movement, through more extensive involvement with changes in contour, size, and general flexibility, with the stomach ultimately becoming generally infiltrated and contracted, and occupying a correspondingly higher position in the abdominal cavity. Throughout the progress of this infiltrating, scirrhous type there may be no irregular projections of the malignant tissue into the lumen of the stomach, and therefore none of the classical "filling defects."

The Mucosal Pattern: Its Diagnostic Value

When outlined by a small quantity of suitable opaque medium the folds or rugae of the lining mucosa of the stomach (along with that of the rest of the alimentary canal) form a striking pattern, the study of which has been recognized for many years as an essential part of any properly conducted *x*-ray investigation.

The involvement of the mucosa in the vicinity of local organic lesions produces various well-known signs. Around the more or less acute simple ulcer the inflamed mucosa becomes greatly swollen, falling away gradually in all directions to normal thickness. As the swelling subsides, so does the depth of the so-called ulcer crater. Hence the rapid healing with deturgescence of the mucosa, resulting from suitable medical treatment; also the frequent impossibility of demonstrating an ulcer unassociated with mucosal swelling, as after recent haematemesis. In contradistinction to the above is the local, irregular, heaped-up margin of neoplastic tissue around the malignant ulcer, and, again, the convergence of the rugae to the chronic cicatrizing ulcer or the old, healed scar.

Of main interest on the present occasion, however, are the changes of the mucosal pattern associated with early

malignancy—the erasure of the folds over an area of infiltration in the scirrhous type, and their abrupt discontinuity at the edges of a fungating mass. How early are these manifest and pathognomonic? What is their value in this respect, as compared, for instance, with the disturbances of peristalsis just discussed? What is the best method for their demonstration?

Åkerlund,[6] in Sweden, and Berg,[1] in Germany, have devised special apparatus for applying local pressure to various small portions at a time of the stomach and duodenum, enabling films to be secured with the pressure, and therefore the fluoroscopic appearance, still maintained. They both claim considerable success in thus demonstrating various pathological conditions. Gregory Cole and his collaborators, on the other hand, maintain that they "have yet to see a single case where localized pressure has established the diagnosis of any ulcer of the cap or any other organic lesion of the stomach where the diagnosis had not already been established by our own serial routine method of examination." It is also of interest that an authority such as Case,[8] in a short review of this book, quotes the above passage almost verbatim, referring to it as a "significant statement."

There is another side to these various attempts at discovering cancer in its earlier stages. They may lead on occasions to the error of diagnosing the probable presence of carcinoma when, as a matter of fact, the observed variations from the normal are due to other factors. This danger, however, would appear to be small compared with the alternative of missing cases in the operable stage. It would be minimized by the more general adoption of the principle of re-examination. A statement has recently emanated from the Mayo Clinic[4] to the effect that "early diagnosis of cancer can be made on repeated examinations."

Problems Peculiar to One or Other End of the Stomach

THE PARS CARDIACA OR FUNDUS

Many inherent difficulties present themselves in the search for pathological conditions, especially cancer, in this area. The rugal pattern is coarse and complicated, and the part beyond reach of palpation. With a carcinoma in this region there may be only very slight clinical symptoms, especially if there be no involvement of the oesophagus. A critical inspection of the lower end of the latter must be considered an essential element in the examination of this portion of the stomach.

An excellent summary of the various radiological indications of cancer of the fundus is given by Stewart and Illick,[9] who enumerate as many as eleven different diagnostic signs, based mainly on involvement of the oesophagus, derangement of the mucosal pattern, interruption to the ingress of the opaque meal, and the direct visualization of the tumour.

THE PARS PYLORICA OR ANTRUM

Just as the cardiac end of the stomach presents its own peculiar problems, so does the immediately prepyloric segment. Usually, in a stomach free from organic disease or functional disturbance, the pars pylorica when distended presents a terminal wall parallel to the base of the duodenal cap, separated from the latter by the pyloric valve.

What, however, are to be the radiologist's interpretations of all the various divergencies from this simple, symmetrical appearance? More or less localized irregularities in the form of the prepyloric gastric lumen, general narrowing of this segment, and widening of the sphincteric zone, often with a loss of the normal parallelism between the opposed base of the duodenal cap and the pyloric end of the stomach, are frequently observed, either singly or in combination. Under palpation this distal segment can perhaps be manipulated into more or less its conventional shape. This is generally accepted as excluding carcinoma or ulcer and the case let go at that, the differences from the usual form being accepted as anatomical variations.

But have these deformations no significance? Surgeons have noted stiffening and congestion of the stomach in this area—for example, in association with cholecystitis.[10] Examination of the tissue removed from the pyloric end of stomachs of the type discussed is said to show the presence of round-cell infiltration and fibrosis. Is it proper, then, that the whole matter be dismissed in the radiologist's report with the remark "no organic lesion detected"? May not the *x*-ray appearances in certain cases be indicative of localized gastritis, and is it possible to determine when this is so? All variations, however slight, from the normal shape of the prepyloric segment must be regarded as important, because of the preponderating incidence of carcinoma in this part of the stomach.

It is general knowledge how difficult may be the demonstration of a prepyloric ulcer, or of an early scirrhous carcinoma; how reactions associated with the former can cause changes in the lumen suggestive of the presence of the latter[11]; and how various other intrinsic and extrinsic conditions can simulate either or both. Here particularly consideration of the clinical data and the probabilities may have to play a relatively large part in arriving at a diagnosis.

Space does not permit discussion of the various forms of gastritis and their possible diagnosis from observed variations in the mucosal pattern, or of less debatable matters such as polyposis, innocent tumours, syphilis, etc.

The Duodenum

Consideration will be limited to the bulbus duodeni or "duodenal cap," which may be regarded morphologically as part of the stomach. One problem is that of the significance of deformation. In the presence of suggestive clinical symptoms, deformation is frequently proffered as evidence of associated ulceration, even if no ulcer crater be demonstrated. On the other hand, after the disappearance of symptoms, perhaps for some considerable length of time, deformation may still be present. The explanation then is that the ulcer is healed, but that the irregularity persists because of the formation of cicatricial tissue. As has been said[12] in effect, the radiologist cannot have it both ways. He cannot use the deformation in the first place as evidence of actual ulceration and then later explain the persistence of the same deformation as due to scarring. The demonstration of a crater, either *en profile* or *en face*, as in the stomach, is frequently possible with good technique, and is practically pathognomonic.

Are there any other signs of value? This leads naturally to the question of duodenitis and the "irritable cap." It would appear that normally the cap has little or no intrinsic peristaltic activity. It frequently is observed to remain consistently full, its contents overflowing from its apex into the more distal segments of the duodenum only as more food is forced into its base, through the pylorus, by the peristaltic action of the stomach. This persistent state of fullness appears to be its normal condition, at least shortly after a meal, and may be a device for breaking up the jets that spurt through the pylorus, thus preventing them from constantly impinging on to more or less the same spot of the duodenal wall and so possibly producing ulceration.

In many cases, however, the cap does not thus remain filled. It may, on the contrary, show all degrees of "irritability" up to the point of refusing to retain practically any of the food received from the stomach, immediately passing it on to the next segment. It may present also every degree of spastic deformation.[13] Frequently, with the aid of palpation, the radiologist is able, in the milder cases, to restrain the onward passage of the opaque foodstuff and fill the cap out until it assumes the normal size and shape. He may, if a "realist," concerned mainly with the demonstration of definite organic lesions, baldly report "no ulcer," ignoring the fact that the cap does not altogether maintain its normal convexly pyramidal, symmetrical shape.

Then, again, there is the appearance of the mucosal pattern, on which, along with that of the stomach, more attention recently has been focused. With duodenitis the mucous membrane is described[13] as presenting a coarse and irregular reticulation, perhaps attributable, however, to puckering of the mucosa by spastic contraction of its muscularis.

On the surgical and pathological sides of the case there is the hyperaemia and stippling of the serosa, with the locally or diffusely inflamed mucosa, unbroken but bleeding easily on manipulation,[13 10] and, clinically, the "duodenal syndrome." Are radiologists in general paying enough attention to the demonstration of duodenitis, and to what extent is this possible?

The Design of the Radiological Investigation

As has already been pointed out, most of the radiological signs for the detection of pathological conditions of the stomach and duodenum and a determination of their nature have been known and discussed for many years, though with sometimes one aspect and sometimes another receiving the greater attention. The question of how the trained radiologist can best elicit and demonstrate these signs is mainly one of technique, conditioned by the economic factors of apparatus required and time and material consumed. It will always remain a problem for consideration and review.

It may be accepted, perhaps, as axiomatic that a comprehensive gastric examination must embrace: (1) the scrutiny and, if necessary, a photographic record of the rugal pattern from end to end; (2) an examination from various angles and in different postures of the stomach and duodenum, along with the adjacent segment of the oesophagus, in successive stages of filling; including (3) observation of its functional behaviour. Any discussion, then, should endeavour to decide how each of these can be carried out most satisfactorily. In detail it would include the choice of opaque material for the various techniques; the most suitable methods of fluoroscopic examination, including posture of patient, manipulation, application of pressure, etc.; the best way of securing permanent radiographic records or films; and the apparatus necessary or most suitable for these purposes. These factors must also be considered as they apply to the various postures of the patient and to the different sections of the upper alimentary tract under review, the latter falling naturally into three divisions: (1) the lower end of the oesophagus and fundus of the stomach; (2) the body or pars media; and (3) the pars pylorica and bulbus duodeni.

If the above thesis holds, it is suggested that fundamental matters for determination by radiologists would be: (1) the constitution of a sufficient and not over-elaborate routine method for the radiological examination of the stomach and duodenum; (2) the additional technique to be made available for determining, as fully as possible, the nature and extent of equivocal abnormalities detected at the first examination, or for further investigating doubtful cases; (3) the ancillary apparatus most suitable for these respective purposes.

As just indicated, a rational solution of the problem would appear to be the institution of two types of examination. The first might be called the "standard" one, resembling that employed by the average present-day expert radiologist; this should be sufficient to disclose most peptic ulcers and the all too frequent advanced carcinomata. The second or "special" examination would be more elaborate, designed to demonstrate those early elusive signs already discussed, and using special fluoroscopic and recording apparatus. This arrangement would seem to be the most suitable for two reasons. In the first place it would be impracticable in a busy *x*-ray laboratory to arrange a time-table for the gastric work, when it was never known whether the various individual cases were going to be subjected to a comparatively expeditious standard examination or to the longer special one. It would also be uneconomical, since it would be unnecessary to put all patients through the more elaborate routine. Under this scheme each patient would be investigated by the "standard" method, the subsequent comparison of his films and the fluoroscopic observations determining whether any definite pathological process were revealed, and, if so, whether sufficient evidence had been obtained to determine its nature and extent.

Where the evidence was considered inconclusive or insufficient, even to the extent of there being only a slightly suspicious appearance in one small area, the patient should be recalled for the special investigation, when, for instance, a meticulous scrutiny of the gastric mucosa would be made, and special serial films obtained for a study of the peristaltic movements. Cases with a significant clinical history but no positive *x*-ray gastric findings at the "standard" examination should also be included in this group for re-examination. Here, in particular, the oesophagus should be subjected to a thorough scrutiny, a procedure to which some of the specialized fluoroscopic apparatus does not readily lend itself; and where the original request from the physician was for a report on the upper part only of the alimentary tract, the examination should be extended to the small and large intestine. Not infrequently gastric symptoms may arise from lesions situated lower down in the alimentary tract, even to carcinoma of the rectum!

In an organization of sufficient size it might be well to have two gastro-intestinal rooms, one equipped for the simpler general routine investigation, and the other with suitable special apparatus for the more elaborate re-examination of selected cases. For every worker the adoption of some one or other definite routine is essential.

The Cost of Radiological Investigation

This is always a factor that has to be considered. Radiological work is inherently expensive because of the apparatus required and the materials used. This is particularly so in Australia, where the cost of equipment is so much greater than on the other side of the world. As technique improves and new methods of examination are developed so must the fee for a thorough investigation tend to rise. The value of the evidence derived therefrom, however, increases in a much greater ratio. Taking it all in all, the amount paid for an *x*-ray examination by a competent radiologist, having regard to the results achieved and the information elicited, is probably the best investment a patient ever makes in the realms of medicine. It is the duty of the radiologist, however, both to the physician and to his patient, to see that these examinations are not made over-elaborate, and it is with this principle in mind that the above method of procedure is advocated.

Summary

The paper treats of various aspects of radiological investigation in general, and of gastric and duodenal conditions in particular. They are dealt with largely from the point of view of the physician and patient, though several technical problems also are propounded and discussed. At the same time it is pointed out how a general acquaintance on the part of the physician with these difficulties of the radiologist can help towards a mutual understanding between the two, to the greater benefit of both, and especially also of the patient, who, after all, is the cardinal member of the triangle and the one most concerned.

An attempt has been made to reconcile the necessity for the most thorough and exhaustive investigation in certain cases with the need for keeping *x*-ray costs in general within reasonable economic limits. Re-examinations play a large part in the procedure suggested as a solution, and the necessity for these should be recognized by the physician.

Distinction has been drawn between the problem of the early, or at least earlier, diagnosis of cancer on the one hand, and that of the diagnosis of early cancer on the other. The latter is, in the light of our present knowledge, mainly an affair of radiological technicalities and the interpretation of *x*-ray evidence. The earlier diagnosis of cancer, however, would appear to depend mainly on the general principles enunciated. It rests not so much with the radiologist as with the medical profession as a whole and society in general.

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A CASE OF DERCUM'S DISEASE AND ITS TREATMENT BY DEEP X RAYS

BY

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Case History

The patient was a married woman of 50 years, who for five years had suffered continuous and intense pain in her legs, which had for the previous eighteeen years been involved in a generalized obesity. Twenty years previously she had weighed 136 lb. In 1914, just at the beginning of the war, her third child was born; she was alone on a farm when the child came, and altogether it was a time of great mental strain. When the child was three months old she had a complete breakdown, and for two years suffered from what appears to have been a post-puerperal melancholia. Her weight fell to 100 lb. In 1916 she began gradually to recover; as she recovered she became stout, and in the course of a couple of years arrived at her present state of obesity. Her weight now varies round about 240 lb. She had no pain in the fatty tissue until five years ago, when her legs became sore all over, the right being worse than the left. She was never free from pain, which prevented her from sleeping at night. In her own words she describes the pain as "worse than childbirth" and "like a thousand teeth aching." It was "in the flesh, not in the bones."

Other points in the history were that she had always lived a normal sexual life since marriage, and had had a son and two daughters. The periods had always been regular, not excessive, and without pain until two years before, when for six months there had been flooding. She then had a subtotal hysterectomy and unilateral ovariotomy for fibroids. Micturition had always been normal and never excessive. Just after the operation she had had a little difficulty in holding the urine.

Lactation had been normal. The only unusual feature was that since the birth of the first child in 1905 (twenty-nine years ago) there had always been some secretion in the breasts, even apart from pregnancy. This persisted to the present time. She did not complain of headache or of any visual disturbance, but was, however, liable to attacks of nose-bleeding. On questioning she said that she had never been very hairy, but when the pain came on she completely lost all hair from the legs. A further leading question caused her husband to say that he thought that, at the time of her breakdown, just before the onset of the obesity, there had been some protrusion of the eyes and tremor of the hands. This was, however, only in answer to the direct suggestion that such was the case.

There was no glycosuria, which is stated by Leyton[3] to be associated with acidophil and basophil but not with chromophobe tumours. There was no evidence of diabetes insipidus. We did not have the opportunity of estimating the basal metabolism, but there was no sign of hypo- or hyper-thyroidism. Nor did we investigate the blood sugar or the blood calcium, but there was nothing to suggest impaired parathyroid secretion. The obesity, loss of hair, and pains in the limbs might have suggested myxoedema, but there was no loss of memory or mental torpor, no dryness or thickening of the skin, and no dryness or brittleness of the hair of the head. Moreover, the pain in the limbs was severe, and not just the aching which occurs in some cases of myxoedema.

Diagnosis

The patient was regarded as a case of Dercum's disease—adiposis dolorosa. Dercum originally thought that this syndrome was due to a depression or perversion of the thyroid function, but more recent investigations[1,2] have shown in quite a large proportion of cases which have come to post-mortem some morbid condition of the pituitary gland.

In this case the only points in the history suggestive of a pituitary origin are (1) the obesity, such as is seen in dystrophia adiposo-genitalis (Fröhlich's syndrome) and in Cushing's syndrome (basophil adenoma); and (2) the lactation apart from pregnancy, which has been described as associated with tumours of the pars nervosa.[3] Corner[4] and Riddle and his associates[5] have, however, brought forward convincing evidence that there is a special lactogenic hormone with its origin in the anterior part of the pituitary. Radiographic examination of the skull showed some changes in the sella turcica. The pituitary fossa was enlarged, the floor a little depressed, and the dorsum sellae thinned and thrust slightly backward. Radiographs of the thighs show great increase of the subcutaneous fat outside the muscle layers.

Treatment

The question of treatment then arose. No endocrine treatment had apparently been devised which would rid the patient of the pain which is the really troublesome

symptom in Dercum's disease. Injection of pituitary gland extract and oral administration of thyroid gland extracts have given fair results in reducing the adiposity but neither relieves the pain. In most cases the patient has to be told to make the best of things.

Now Fröhlich's syndrome, dystrophia adiposo-genitalis, has been shown to be associated definitely with hypopituitarism, which may arise either from depression of the function of the gland by the pressure of a tumour in the neighbouring structures, or in another part of the pituitary itself, or from diminished activity. In view of the beneficial results that had been obtained by the *x*-ray treatment of acromegaly, it was natural that *x* rays should be given a trial also in Fröhlich's syndrome. The results obtained have been, as might be expected, very variable. In fact, Holfelder[6] condemned *x* rays outright on the ground that the syndrome was well known to be due to a depression of function, which presumably *x* rays would further depress. Nevertheless good results have been obtained. Probably what happens is that in cases which do well the depression of function is associated with destruction or pressure by a tumour and the tumour is affected by the radiation, thus relieving the pressure. This is the view upheld by Baensh[7] in a recent article in which he shows that whereas the cells of the adult pituitary are insensitive to radiation those of the growing animal and of adenomata are sensitive. Reviews of cases of Fröhlich's syndrome treated by irradiation of the pituitary are given by Kupferle and Szily, 1926,[8] and by Marburg and Sgalitzer in their work *Die Röntgenbehandlung der Nervenkrankheiten*, published in 1930.[9] They collected forty cases which showed variable results, but, on the whole, most showed some improvement in one respect or another. Adiposity was in general uninfluenced, genital function was improved, diabetes insipidus improved, headache was relieved, and eye symptoms, where present, were relieved in just over half the cases. Since then further papers have appeared by Schulte,[10 11] Baensh,[7] and Harris and Selinsky.[12] Recently cases of Cushing's syndrome have responded well to irradiation of the pituitary.[13 14]

No case of Dercum's disease has, however, been found which has been treated by irradiation of the pituitary. Maddox[15] says that he is going to try it, and that the method has not yet been fully exploited. A case of Cushing's syndrome—basophil adenoma—reported by Dr. R. D. Lawrence and treated with *x*-radiation by Dr. Hugh Davis is stated to have had "pains in the limbs" which disappeared after treatment. In view of the poor results of any therapeutic means hitherto tried, and of the strong probability of the pituitary being primarily at fault, it was suggested that radiation might be tried in this case. It was made quite clear to the patient and her husband that the treatment was experimental, but the patient was in such pain that she was ready "to try anything."

Treatment as follows was given at eight weekly intervals from February 8th to March 27th, 1934: 200 kV 4 mA, 6 × 8 cm., 0.8 mm. Cu + 1 mm. Al. Right and left temporal fields alternately. Four treatments to each. 140 r units each treatment.

The result was beyond expectations. The pain improved after the second treatment, and has now almost entirely disappeared. The adiposity has not been influenced, although subsequent dietary treatment has caused a steady reduction of weight. The patient says that she cannot stand long and gets readily faint and tired, and when she is tired her legs ache, but not like they did before. She thinks that the size of her legs has decreased. She had lost a little hair from the head, but this has grown again. With regard to the pain she says, "Life is worth living again; it wasn't before." The improvement in the pain is maintained to the present date, eight months after treatment.

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CAESAREAN SECTION IN INFECTED CASES

A SERIES OF FORTY-FIVE CAESAREAN SECTIONS IN INFECTED OR POTENTIALLY INFECTED CASES, WITH NO MATERNAL MORTALITY

BY

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The risk of performing Caesarean section in infected or potentially infected cases is well known. Statistics quoted by Holland[1] give the maternal mortality as 9.4 per cent. where the operation is performed late in labour, 14 per cent. when it has been preceded by induction of labour, and 26.5 per cent. when it follows attempts at delivery by forceps or craniotomy. It is not, therefore, without a sense of serious responsibility that I admit having performed it in a considerable number of such cases. I report these, nevertheless, because indications are not lacking that the pendulum now tends to swing too far in the other direction, and that the lives of many infants and of a certain number of mothers are sacrificed, not because the operation is performed in potentially infected cases, but because it is not performed.

The possible dangers of a difficult instrumental delivery are not always realized, and those who refuse ever to perform Caesarean section in such cases as "failed forceps," for example, or the non-engagement of the head after a surgical induction of labour, may be unwittingly condemning their patients to a far greater evil.

It was the realization of this in my own practice, when, in a case which came under my care during labour, I had the misfortune as the result of a difficult delivery to lose both mother and child, that determined me to be less unwilling to perform Caesarean section in such cases in future. Apart from the maternal aspect of the case, the life of the foetus merits more consideration than it sometimes receives. It is difficult to understand why a life which is so jealously guarded, often at serious cost to the mother's health, during the first months of pregnancy should not be entitled to at least equal consideration during the last. To take only one illustration: it is well known that the foetal mortality in cases of prolonged uterine inertia, apart from organic obstruction, is very high. Bell,[2] in a series of forty-nine such cases occurring at Queen Charlotte's Hospital, reported a foetal mortality of 40 per cent., the maternal mortality in the same series being 10 per cent. And yet the condition of prolonged inertia is not one of the generally recognized indications for Caesarean section, the slight additional risk to the

mother being allowed to outweigh the enormously increased danger to the child. This consideration applies with special force to those cases where the pregnancy has either followed an operation for sterility, or the patient is an elderly primipara.

Case Records

The following details refer to a series of forty-five patients operated on during the past eleven years. I have endeavoured to trace every case which could come under this heading, but even if any have been overlooked I can state definitely that there has been no maternal death in any case which could have been included in this series.

The standard of puerperal morbidity is that described in *Queen Charlotte's Text Book of Obstetrics*,[3] a puerperium being classified as morbid if the temperature reached 100.4° F. or more on two occasions between the second and eighth days.

The factors which have been taken as indicating potential or actual infection before the operation, and the actual cases concerned, are as follows.

I. Membranes Ruptured for More than Twenty-four Hours

Twelve cases. One foetal death (this foetus was believed to be dead before the operation). Four morbid puerperia.

This series includes two cases where the membranes had been ruptured for sixty hours or more, and a third where they had been ruptured fifty-two hours. (This patient had functional rigidity of the cervix and was very anxious for a child.) In a fourth case the membranes were known to have ruptured before the onset of labour, which had lasted four days, and were stated by the patient to have ruptured two weeks previously.

In many instances vaginal examinations varying from two to "about seven," or "several," had been made. Three of the cases were "trial labours," the membranes having been ruptured thirty-eight, forty-three, and "at least forty-eight" hours respectively.

The indication for operation was usually disproportion, but in one case, reported elsewhere,[4] it was increasing toxaemia which failed to respond to treatment. Caesarean hysterectomy was performed once, the patient having been in labour six days, with the membranes ruptured sixty hours. On admission to hospital her pains were very strong, with practically no relaxation between pains, but the cervix was only two fingers dilated and the head was high. The child was believed to be dead, but Caesarean hysterectomy was considered safer than craniotomy.

II. Prolonged Labour Only

Five cases. No foetal mortality. One morbid puerperium.

One patient, who had had six vaginal examinations, had been in labour for five days, three for four days, and one, who had had three vaginal examinations, for thirty-eight hours. In two cases the delay was due to a rigid cervix, one patient being an elderly primipara—married for twelve years. In this last case a contraction ring was seen at the operation and divided before the child could be delivered. Inhalations of amyl nitrite had had no effect on it.

III. Surgical Induction of Labour

Thirteen cases. Two foetal deaths (one known to be dead before the operation). Six morbid puerperia.

In eight patients, three of whom had a morbid puerperium, labour had been induced by rupturing the membranes, and in five, of whom four had a morbid puerperium, by the introduction of bougies or a tube.

In nine cases the indication for induction was disproportion. In four it was severe toxaemia, but this did not respond to treatment, and it was feared eclampsia would supervene unless the patients were delivered immediately. In the case where the child was known to be dead the head remained high and Caesarean section was chosen as being less dangerous than craniotomy.

IV. Ante-partum Haemorrhage with Preliminary Plugging or Douching

Five cases. One foetal death (macerated). Three morbid puerperia.

Four were cases of placenta praevia, the vagina having been plugged in three, and hot douching resorted to in one. The most interesting of these was a patient who was seized with sudden alarming haemorrhage in the ante-natal department after being examined. She became rapidly blanched and faint, and had to be plugged regardless of full antiseptic precautions. Despite a morbid puerperium she made an excellent recovery.

The fifth case had had vaginal plugging for profuse bleeding and when seen was almost moribund from loss of blood. Caesarean section was performed on the assumption that she was a case of placenta praevia, but without further examination for fear of causing more bleeding. She proved to be a case of severe toxaemia and accidental haemorrhage, the uterus being almost black in parts. The foetus was macerated.

V. "Failed Forceps"

Seven cases. One foetal death. Three morbid puerperia.

1. Multipara. Admitted from district, but forceps applied in hospital. Vagina plugged owing to bleeding following unsuccessful attempt at delivery. Non-morbid puerperium.

2. Primipara. Forceps delivery attempted in hospital after manual rotation of occipito-posterior position. Cervix and perineum torn. Child born alive, but died almost at once. Morbid puerperium.

3. Admitted to hospital as an emergency case with a history of "failed forceps" and many vaginal examinations. Cervix not fully dilated on admission, therefore further trial of labour given before operating. Morbid puerperium.

4. Primipara aged 42. Admitted to hospital as an emergency case, having had forceps applied eleven hours previously. Cervix not fully dilated on admission. Caesarean hysterectomy performed with drainage because the patient was very anxious for a living child. Non-morbid puerperium.

5. Primipara. Two attempts at forceps delivery in hospital, each preceded by attempt at manual rotation of occipito-posterior presentation. Cord tending to prolapse. Morbid puerperium. Lower segment operation.

6. Primipara aged 37. Anxious for a child. Seen in response to a message that attempts at forceps delivery had been continued for two hours. Unreduced posterior presentation. Vulva oedematous. Lower segment operation. Non-morbid puerperium.

7. Primipara. Anxious for a child. Labour complicated by fibroids. Forceps had been applied before the cervix was fully dilated. Lower segment operation and myomectomy. Non-morbid puerperium.

VI. Unclassified Cases

Three cases. No foetal death. Two morbid puerperia.

1. Prolonged labour with contracted pelvis. Had had "about ten vaginal examinations." Temperature 100° F. the night before operation. Non-morbid puerperium.

2. Second Caesarean section for contracted pelvis. Membranes had been ruptured for twelve hours, and a foot prolapsed outside the vulva before the operation. The foot was painted with violet-green before being replaced. Morbid puerperium.

3. Complicated by volvulus of caecum at term. Turbid fluid in peritoneal cavity. The volvulus could not be untwisted until Caesarean section had been performed (case reported elsewhere[5]).

Commentary

The total number of foetal deaths in the whole series was five, but of these two were known, and one believed, to have occurred before the operation. If these, with the three mothers, are excluded the foetal mortality of the

series is two out of forty-two, or 4.7 per cent. Nineteen cases—that is, 42.2 per cent.—had a morbid puerperium. In sixteen cases the lower segment operation was performed, and of these seven, or 43.7 per cent., had a morbid puerperium.

No attempt has been made to follow up the subsequent obstetric history of these cases as a whole, but I have performed a subsequent Caesarean section on three of the patients—namely, V 2, VI 3, and the patient with the rigid cervix referred to in I. It is interesting to note that the first of these became pregnant again after nine months, and the other two after five months, suggesting that the infection had not been a very serious one. In the case of V 2 there was an adhesion between the omentum and uterus, but none to the abdominal wall or elsewhere. In the other two cases there were numerous adhesions.

Technique of Operation

The technique adopted in both infected and clean cases is the same in many particulars. Thus in all my cases the abdomen is painted with Bonney's blue paint, and the vagina swabbed out when the patient is anaesthetized. Pitocin (1 c.cm.) is injected into the uterine wall immediately the child is delivered. If the classical operation is performed the uterus is sewn up with interrupted silkworm-gut stitches, and a continuous catgut suture superimposed. The additional precautions taken in infected cases when the classical operation is employed include some or all of the following: evisceration of the uterus before incising it, swabbing its cavity with Bonney's blue paint, suturing an omental patch over the uterine scar, and abdominal drainage.

A prophylactic injection of scarlatinal antitoxin is given in every doubtful case, and if the soft parts have been injured—as, for example, in V 2—*B. welchii* serum is given too. Many cases receive quinine injections in addition. I now employ the lower segment operation in almost every doubtful case, but I have only done this comparatively recently, and if it is permissible to draw any conclusions from such a short series the results from the lower segment operation would not appear to be any better than those from the modified classical operation. When the risk of infection seems to be very great a Caesarean hysterectomy is performed, and this was done twice in this series.

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VON GIERKE'S DISEASE ASSOCIATED WITH AMYLORRHOEA

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A medical rarity has its own interest. If it can be shown to illustrate a perversion of a well-known physiological mechanism its value becomes even greater, in that it may shed light upon normal metabolic processes as yet imperfectly understood. In von Gierke's disease glycogen accumulates in various organs of the body, especially the liver, and is only broken down with the greatest difficulty.

The condition was first described by von Gierke[1] in 1929; subsequently cases have been recorded in America,[8 9] Australia,[10 11] France,[12 13] Germany,[14–18] Holland,[19 20] Italy,[21] and in this country by C. Worster-Drought,[6 7] Bellingham Smith and O'Flynn,[5] E. C. Warner,[4] and R. W. B. Ellis.[2 3] Von Gierke's[1] original case occurred in a little girl aged 8. It was characterized by progressive enlargement of the liver without any enlargement of the spleen. There was no jaundice and no ascites. The child died from influenzal pneumonia. At the necropsy the liver and kidneys were found to be greatly enlarged and infiltrated with enormous quantities of glycogen. The liver contained as much as 10 per cent. of its post-mortem weight of glycogen, and, as Schönheimer showed, this glycogen failed to undergo hydrolysis when it was incubated at body temperature. More recently cases have been described in which the deposition of glycogen has not been confined to the liver and kidneys, but has occurred in other tissues, such as skeletal,[19] heart,[8 19] pyloric stomach muscle,[20] or even the central nervous system.[8]

The disease is one of childhood. It seems likely that there is a tendency to slow spontaneous recovery providing that the child does not succumb to an intercurrent infection. Stunted in growth, though by no means necessarily backward mentally, the child has a well-covered and prominent abdomen, which is in striking contrast with its thin and underdeveloped limbs. There is progressive enlargement of the liver, but not of the spleen. There is no jaundice or ascites. The fasting blood sugar is low, and is not appreciably raised by the injection of adrenaline. The glucose tolerance curve is abnormal. Acetone is present in the urine at some stage of the disease, and in some cases is a constant feature.

Hypertrophic steatosis of the liver, which resembles the condition so closely that Debré and his co-workers[12] decline to distinguish between it and von Gierke's disease and group the two conditions together under the heading "hépatomégalies polycoriques," follows an acute infection, and does not give rise to ketonuria. Our object in recording this case is to describe a new finding and to discuss its bearing on the pathology of the condition.

Clinical and Biochemical Findings

The patient was 5 years old, and presented all the typical features of the condition except that, so far from being fat, he was definitely thinner than normal. The liver was greatly enlarged, especially the right lobe, which was separated from the left by a "notch" (see illustration). His weight had been average at birth, but had only increased erratically. Every cold caught was followed by a period of stationary weight lasting for six months or more. In January, 1934, following a minor infection, he had what was apparently an attack of ketosis, since he was comatose, with marked air-hunger. He was very bright mentally, but walked late, and until recently used to become extremely exhausted after short walks or other similar exertion.

Biochemically the usual features were present.

1. The fasting blood sugar was 50 and 57 mg. per cent. respectively on two occasions.

2. The glucose tolerance curve was abnormal in that it rose to a higher level than normal and took a long time to come down:

Fasting blood sugar	50 mg. per cent.
Forty-five minutes after the ingestion of 1 gram glucose per kg. of body weight	175 ,, ,, ,,
Two hours after glucose	100 ,, ,, ,,

3. There was a deficient response to the injection of adrenaline.

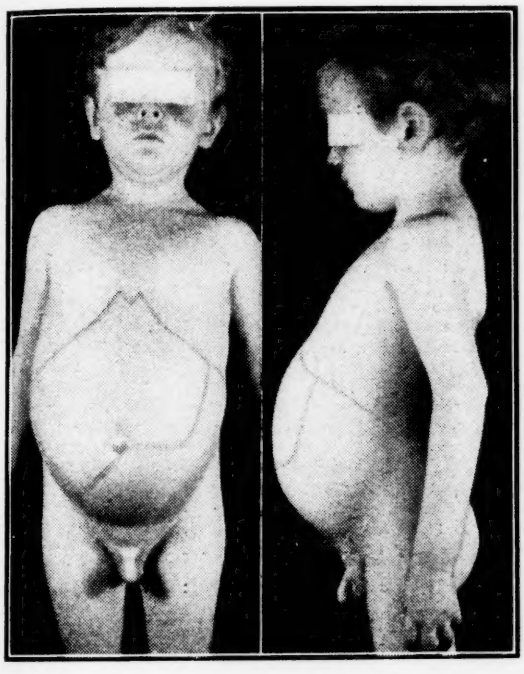
Fasting blood sugar	57 mg. per cent.
Fifteen minutes after the injection of 5 minims of 1 in 1,000 adrenaline, blood sugar	60 ,, ,, ,,

4. The urine contained acetone in both the fasting condition and at the end of the glucose tolerance test, and in both instances its *p*H was 5.2.

So far the findings corresponded to what has hitherto been described, but the following seems to be a new observation. The patient's mother had been impressed by the fact that his stools had always been peculiar and jelly-like, and that when he was worse in health the stools were more abnormal. On analysis it was found that the fat was within normal limits:

Total fat	=	17 per cent.
Neutral fat + free fatty acids ...	=	10 ,, ,,
Soaps	=	7 ,, ,,

Under the microscope an enormous amount of starch was visible. Quantitatively it was found that 34 per cent. of the dried faeces was starch (estimated as glucose). This led at once to the suspicion that amylase was absent or deficient, but it was found that the faeces of this child



digested an artificially prepared solution of starch more readily than did the faeces of a normal child on the same diet.

One gram of the patient's faeces (wet) digested 120 c.cm. of a 1 per cent. solution of starch.

One gram of the normal faeces (wet) digested 44 c.cm. of a 1 per cent. solution of starch.

Discussion

Why did the amylase not attack the starch? A faecal extract was filtered through a Chamberland filter candle to get rid of the organisms, but the diastatic activity remained unchanged. Therefore the digestion that occurred when a mixture of the faeces and a solution of starch was incubated could not be attributed to bacterial activity, but must be due to the presence of active amylase. What prevented the amylase from digesting the starch when the faeces (containing both) were incubated? The only possibility seemed to be that the reaction was at fault, and this was found to be the case. The faeces which had been stored on ice before analysis were found to be highly acid in reaction, and only when the acids were neutralized by the appropriate addition of alkali did fermentation of the starch occur *in vitro*. It would appear, then, that in von Gierke's disease there is (1) inability on the part of the liver to convert animal starch (glycogen) into glucose, and (2) impaired digestion of vegetable starch in the intestine.

It is clear that the condition represents a profound disturbance of the carbohydrate metabolism. Glycogen is not utilizable ; it accumulates as a waste product in the liver and other organs, and starch is imperfectly digested in the alimentary canal. It would be logical to assume that there is one single factor responsible for both these phenomena, but it is extremely difficult in view of the complex nature of the problem, involving as it does the interplay of enzymes, substrates, hydrogen-ion concentrations, and endocrine factors, to evolve a satisfactory working hypothesis.

Hepatic Dysfunction

Several interesting problems arise. Why is the glycogen not broken down in the liver?

1. There might be a lack of amylase (glycogenase) in the liver, as originally hypothecated by von Gierke. Unshelm[15] showed this theory to be untenable. He incubated a mixture of the liver in von Gierke's disease with a solution of starch, and obtained rapid hydrolysis with the liberation of glucose.

2. Glycogenase might be adsorbed to protein material in the liver. Willstätter[15] showed that leucocytes contained two kinds of amylases, " bound " and " free." The " bound " ones are relatively inert, since they tend to become adsorbed to proteins. It is possible that the amylases in the liver in von Gierke's disease are all in the " bound " form, and require some factor to liberate them. This is the view favoured by Unshelm.[16]

3. The fault may lie in the glycogen rather than in the enzyme. Unshelm,[15] however, showed that if normal glycogen-free liver was minced up with von Gierke liver and allowed to incubate, the glycogen was broken down. Therefore in von Gierke's disease glycogen is not present in a form which cannot be hydrolysed in the liver by its own enzymes.

4. There is still the possibility of a local *p*H disturbance in the liver. It might be that in the liver cells the reaction is such that the glycogenase cannot attack the glycogen. In support of this view we would quote our own findings with regard to the faeces. Here the presence of undigested starch was associated with its high acidity, and not with any lack of ferment ; probably the reaction in the immediate neighbourhood of the starch grains in the intestine was such that the amylase could not split the starch.

5. The immobilizability of glycogen may be due to a persistence of the foetal condition. This is the view held by the German school, and by van Creveld,[19] who considers it to be a hormonal effect. The persistence of the foetal condition might well be invoked to account for the amylorrhoea in this case, since it is known that starch is not readily digested during the first few months of infancy.

6. Is the condition due to an endocrine disturbance? There is considerable experimental and clinical evidence in favour of this view. The low blood sugar, the abnormal glucose tolerance curve, the ketosis, and the impaired breakdown of liver glycogen suggest that the normal balance between insulin and its antagonists is upset. Hyperinsulinism cannot be the cause—though this would favour glycogen deposition in the liver—in view of the marked elevation of the blood sugar following the ingestion of glucose. Nor can adrenal insufficiency be held responsible, since the injection of adrenaline does not raise the blood sugar.

Experimental Work

Houssay, and Corkill, Marks, and White[22] showed that rabbits deprived of their pituitaries were unduly sensitive to insulin, and suffered from hypoglycaemia. (These

are both prominent symptoms in von Gierke's disease.) This hypoglycaemia could not be overcome by the injection of adrenaline, and only with difficulty by the intravenous administration of glucose. What is more, the livers of these rabbits contained abundant glycogen. It would seem that in the absence of the pituitary the liver glycogen is not readily converted into glucose. Fluch, Greiner and Loewi,[23] in their experiments on frogs, showed that glycogen breakdown in the liver was impaired when the anterior lobe of the pituitary gland had been removed, but whether this is a direct or an indirect effect through the thyroid or adrenals has still to be worked out.

Still more recently Anselmino and Hoffmann[24] claim to have isolated from the anterior lobe of the pituitary what they term a "carbohydrate metabolism hormone." It has the property of diminishing the liver glycogen of rats a few hours after its injection; it can be found in the blood of fasting diabetics, but in the blood of normal people only after a carbohydrate-containing meal. The lack of this hormone might well cause glycogen to accumulate in the liver, and be responsible for the low blood sugar.

Clinical Considerations

Corroborative evidence of endocrine dysfunction is obtainable clinically. In von Gierke's[1] first case atrophic adrenals were found. It has been shown experimentally[22] that ablation of the pituitary body leads to atrophic changes in the suprarenals (and thyroid). The case of Wagner and Parnas[1] began as a typical glycogen accumulation disease, but developed frank diabetes mellitus.

Several cases have been described as having an abnormal fat distribution, such as is encountered in disease of the pituitary gland. One of van Creveld's[19] patients had a definite dystrophia adiposo-genitalis.

Hantschmann[25] describes a case of Simmond's disease which at necropsy showed atrophy limited to the anterior lobe of the pituitary body. The patient had the typical cachexia and wasting, and was found also to be hypersensitive to insulin and to be suffering from a chronic hypoglycaemia. Lyall and Innes[26] have recently described a severe case of diabetes where marked improvement of the diabetic condition took place concurrently with the development of a destructive lesion (cystic adenoma with beginning calcification) of the pituitary body. They consider that the patient's condition is clinically analogous to that of an experimental animal in which the intense diabetes caused by pancreatectomy is alleviated by hypophysectomy.

Conclusion

These experimental and clinical observations give strong support to the endocrine theory of origin of this condition. They suggest that the normal balance which obtains between the pituitary body and insulin is disturbed. To account for the amylorrhoea is more difficult. So far as we know neither the pituitary body nor its satellites (the suprarenal and the thyroid glands) are concerned with the intestinal digestion of starch, but it has been shown recently by E. C. Dodds and co-workers[27 28] that the posterior lobe of the pituitary body contains a substance capable of inducing a severe lesion of the acid-bearing area of the stomach—sometimes haemorrhagic, and sometimes of the nature of a chronic ulcer. Furthermore, the stomach of an animal which has received an injection of this pituitary extract will not yield hydrochloric acid, even after the injection of histamine. It is therefore not inconceivable that the pituitary may have some relation to the interaction of amylase and starch in the small intestine, if only from the hydrogen-ion concentration point of view.

Summary

1. A case of von Gierke's (glycogen accumulation) disease is described, and the presence of amylorrhoea, a new finding, is noted.

2. It is suggested that there is in this condition an inability on the part of the liver to convert animal starch (glycogen) into glucose, and an impaired digestion of vegetable starch in the intestine.

3. Possible mechanisms are discussed, and it is suggested that there is either (*a*) a disturbance of the *p*H in the immediate neighbourhood of the glycogen in the liver cells and in the immediate neighbourhood of the starch grains in the intestine, or (*b*) an endocrine disturbance, quite distinct from the more familiar ones in that the balance which normally exists between the carbohydrate metabolism hormone of the anterior lobe of the pituitary and insulin is upset.

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During 1935, the twelfth year of the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation, seventy applications for grants were received and twenty-five were approved, one of these being a continuation of an annual grant. Twelve of the new grants were awarded to scientists in countries other than the United States. Among the recipients were Professor P. Ellinger of London for the continuation of work on the physiology, pathology, and pharmacology of the kidney, and research on vitamin B deficiency. Dr. H. A. Krebs received a grant for experiments on the mechanism of ketogenesis and anti-ketogenesis. It is announced that grants will be given in the sciences closely related to medicine, without reference to special fields, the maximum size of the contribution being as a rule less than 500 dollars. Applications for grants must reach Dr. J. C. Aub, Collis P. Huntington Memorial Hospital, 695, Huntington Avenue, Boston, Massachusetts, before May 1st. There are no special forms of application, but letters asking for aid must state definitely the qualifications of the investigator, the character of the proposed research, the size of the grant requested, and the specific way in which the money will be expended. It is highly desirable to include letters of recommendation from the directors of laboratories or clinics in which the work is to be done.

THE ASCHHEIM-ZONDEK TEST IN THE PUERPERIUM

BY

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There is no general agreement as to when, following uneventful pregnancy and normal parturition, the Aschheim-Zondek test first gives a definite and permanent negative result. Aschheim and Zondek[1] state that "as little as 0.05 c.cm. of urine may give a positive reaction at the end of pregnancy. The reaction may disappear as early as five days after childbirth, and regularly ceases eight days after." Mazer and Edeiken[2] express the view that "the source of prolan is the living chorionic epithelium, which should not persist longer than two weeks after the termination of a normal pregnancy." According to Hamburger[3] "immediately after parturition there is a very great and abrupt fall in the hormone concentration (within twenty-four hours down to about 1/20), and then in the next dozen days the hormone content in the urine falls off below any demonstrable amount." Mack and Agnew[4] refer to four cases in which the test was carried out two to seven days following parturition, giving positive results. Robson,[5] quoting Zondek,[6] says that the test remains positive not only so long as living products of conception are present, but for some days after that period ("about a week to nine days as a rule").

In connexion with the work of the Pregnancy Diagnosis Laboratory it was found desirable to examine this question. Through the eager co-operation of the honorary and nursing staff of the Royal Simpson Memorial Hospital, Edinburgh, specimens from a series of fifty cases were made available for the purposes of this study. From each case a specimen of urine was obtained as soon as possible after parturition, and thereafter at twenty-four-hour intervals. The results obtained are given in the following table:

		Positive	Negative
1st specimen ...	¾-7 hours after parturition	45	5
2nd " ...	24 hours later	26	24
3rd " ...	48 "	15	35
4th " ...	72 "	2	48
5th " ...	96 "	0	50
6th " ...	120 "	0	50
7th " ...	144 "	0	50

Of the five cases in which the first specimen gave a negative result one gave a weak positive (one blood spot in one mouse) at the second test and negatives thereafter: the other four continued to give negatives consistently. In two cases in which the first specimen gave a positive and the second a negative result, the forty-eight-hour specimens evoked weak positive reactions, whilst the seventy-two-hour and ninety-six-hour specimens were negative again. The two seventy-two-hour positives were both weak. In those cases in which a series of positives was succeeded by a negative, the last of the positives was, as a rule, a weak reaction.

It may be concluded that under the conditions which obtain in this laboratory, the Aschheim-Zondek test invariably yields a definite and (presumably) permanent negative result ninety-six hours after normal and complete parturition. The results obtained suggest that the Aschheim-Zondek test on the fifth day of the puerperium might well be used as a routine procedure for the diagnosis of retained living products of conception.

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Clinical Memoranda

Strychnine Poisoning Treated Successfully

A strong, healthy young man, aged 22, bought 6 grains of strychnine hydrochloride for the purpose of suicide. He obtained the poison by stating that he wished to poison rats, went home, dissolved it in water, and drank it. While doing so he remarked to a member of his family that he was taking poison and would be dead in half an hour. The family doctor was summoned immediately, and the patient was rushed off to hospital within twenty minutes of swallowing the draught.

CASE REPORT

On admission at 1 p.m. twitching had commenced. Apomorphine was not obtainable, so zinc sulphate 30 grains was administered. By the time this had been done all the signs of severe strychnine poisoning were in evidence, with exceptional opisthotonos and pronounced cyanosis and asphxia.

Chloroform anaesthesia was administered, and as this did not entirely control the intense spasms, at 1.30 p.m. he was given a hypodermic injection of morphine sulphate 1/2 grain. In spite of this treatment the patient became so deeply cyanosed that amyl nitrite pearls were resorted to, and this rapidly relieved the asphyxia. The stomach was washed out with about a gallon of potassium permanganate solution, and at least half a pint was left in the stomach.

FURTHER DRUG THERAPY

At 2 p.m. the convulsions were still violent, and another hypodermic injection of morphine 1/2 grain, with atropine 1/50 grain, was given.

At 3 p.m. chloral hydrate 30 grains and potassium bromide 60 grains were given per rectum, and at 3.45 p.m. a third hypodermic injection of morphine sulphate 1/4 grain and atropine 1/100 grain was administered. At this time the pulse was 142, the spasms, though less frequent, were still severe, and the degree of cyanosis was alarming. Chloroform anaesthesia was maintained with the occasional administration of amyl nitrite to relieve asphyxia and cyanosis.

At 7 p.m. chloral hydrate 20 grains and potassium bromide 15 grains were given again per rectum.

At 9.30 p.m. the patient appeared to be in a very critical condition: his respirations had assumed a Cheyne-Stokes character, and there was grave cyanosis. He was now given atropine 1/100 grain hypodermically.

At 9.45 p.m. carbon dioxide and oxygen were administered until 10.15 p.m., when the spasms diminished, cyanosis became less and less, and the respirations assumed a more normal character and rhythm. He awakened, asked for water, and then fell off into a deep sleep, which lasted until 6.15 o'clock the next morning. At 7.55 a.m. he vomited and complained of severe headache, but in other respects he felt well. He did not seem any the worse for his ordeal, and was discharged the following day.

COMMENTARY

There is no doubt that the time factor operated in helping to save this patient, for there was little or no delay in getting him to hospital. Deep chloroform anaesthesia, even combined with large doses of morphine, did not relieve the severe asphyxia resulting from the spasms of the respiratory attacks, but when combined with amyl nitrite the effect was magical.

Spinal puncture and the injection of a 25 per cent. solution of magnesium sulphate was considered, as also

was the intravenous injection of sodium evipan, but both were abandoned as being too risky, especially in a case of this sort when the spasms were so frequent and severe ; so we relied on our old friends and won through.

Our thanks are due to the other members of the staff who rendered valuable assistance and are in great measure responsible for the successful result.

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Cerebral Cysticercosis Simulating Epilepsy

A short note of this case may be of interest at this time, as it comes so recently after the annotation on "Cysticercosis and Epilepsy" in the *Journal* (December 21st, 1935, p. 1214) and the correspondence which followed (*Journal*, January 4th, p. 32). It emphasizes, too, the advice quoted there, from Dixon and Smithers, to suspect cysticercosis in a patient previously healthy who has lived abroad if he develops fits or anomalous nervous or mental symptoms.

CASE REPORT

The patient was a man, 50 years of age, who had served in India twelve to fourteen years ago: he gave a history of being subject to malaria since this service. Before and after being in the Army he was a caulker in a shipyard. From 1923 to 1933 he led an apparently normal life. In 1933 he began to suffer from epileptiform seizures, and one year later was admitted to an epileptic colony, where he remained until shortly before his death. He was subject to fits of depression, occasionally with confusion, and at one time he had an outburst of religious mania. He had indefinite seizures in which his temperature rose to over 101° F., perspiration became profuse, and incontinence and exhaustion followed, though consciousness was not lost. These signs were not indicative of true epilepsy, and other investigations resulted as follows. The urine and faeces were normal ; there was abundant foul sputum, but examination for tubercle bacilli was negative, and *x*-ray examination of his chest showed no abnormality. His reflexes were normal, and the Wassermann reaction was negative ; a blood film taken in August, 1935, showed a 6 per cent. eosinophilia.

In September, 1935, the patient began to suffer from cerebral vomiting ; lumbar puncture showed that the cerebro-spinal fluid was under slightly increased pressure. The vomiting increased in frequency, and a severe and persistent headache developed over the occipital region. The patient's condition became rapidly worse, and he died on December 3rd, five hours after admission to hospital.

POST-MORTEM FINDINGS

A post-mortem examination was performed on December 4th. There were no points of interest in the organs of the chest and abdomen. In the brain there was evidence of increased intracranial pressure: the convolutions were flattened, and there was little cerebro-spinal fluid over the vertex ; the lateral and third ventricles were slightly dilated. In the brain substance there were about thirty rounded cyst-like structures, varying in size from 0.5 cm. to 2 cm. in diameter. In a horizontal section at the level of the basal nuclei two were present in the left and one in the right occipital lobes, one at the posterior end of the left island of Reil, and one in the left frontal lobe ; these were all subcortical. Others were seen in the basal nuclei—one in the left caudate nucleus, three in the right thalamus, and one in the right lenticular nucleus ; one lay at the tip of the right caudate nucleus. Another one was present in the membranes of the right Rolandic fissure. Some of them had thin translucent walls with clear fluid inside, and contained small solid structures attached by pedicles to the walls ; in others the walls were thicker and the solid bodies inside were more opaque ; others were smaller and denser, and contained calcified material.

Microscopically these rounded structures were seen to be parasitic cysts, each containing a scolex with four suckers and a ring of hooklets, the denser ones showing calcification in parts. A specimen was submitted to Professor R. T. Leiper, professor of helminthology of the London University and the London School of Hygiene and Tropical Medicine, who kindly supplied the information that they were *Cysticerci cellulosae*, larvae of the *Taenia solium*.

This patient's history before 1934 was very indefinite, but there was no evidence of his having passed segments of a worm, and no adult tapeworm was found post mortem ; so he does not seem to have infected himself. This case corresponds, then, to the description of cases given by Colonel W. P. MacArthur in his article on "Cysticercosis as Seen in the British Army, with Special Reference to the Production of Epilepsy,"[1] when cysticerci were confined to the brain.

I wish to acknowledge my indebtedness to the doctor who provided the clinical notes of this case, and to Professor Leiper.

JOHN C. DICK,
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Glasgow.

Obesity in Pulmonary Tuberculosis

A pronounced gain in weight in cases of active pulmonary tuberculosis under institutional treatment is a frequent occurrence, but for a patient to double her weight in a period of eight months must be exceptionally rare.

A dressmaker, aged 25, was first seen in October, 1933, at the Tuberculosis Dispensary at the Royal Northern Hospital. She complained of cough with expectoration, lassitude, and loss of weight over a period of six weeks, but had continued her work until two weeks previously. On inspection she was obviously pale, wasted, and ill, pulse 108, and temperature 100.2° F. Examination of the chest showed impaired resonance over both upper lobes, while there was marked dullness and obvious cavitation at the left base, coarse rales being audible in this area. A skiagram showed coarse tuberculous mottling at the left base and finer mottling in the right upper lobe. The sputum was positive. Her weight was 6 st. 12 lb. (clothed), her normal weight being 7½ st. In view of the patient's general condition and the well-marked basal location of the lung lesion a rather gloomy view of the prognosis was taken. Sanatorium was advised, but the patient and her parents were very strongly against this course, and, accordingly, she was advised to rest thoroughly at home under the care of her doctor. This she did, and was waited on assiduously by her mother while she remained conscientiously in bed for seven months. During this period her cough and sputum gradually disappeared.

In July, 1934, she reattended the Royal Northern Hospital, and I was astonished to find that her weight was now 13 st. 8 lb. She was obviously grossly obese and almost top-heavy. There was well-marked tachycardia and dyspnoea, associated, I think, almost entirely with the obesity. The lung signs had much improved. The left basal cavities seemed diminished in size and drier, and an *x*-ray showed considerable clearing-up of the previous shadows. The patient, who was naturally sensitive about her changed appearance, was advised to diet and gradually increase the amount of exercise taken. This, however, has only resulted in a loss of 5 lb. to 13 st. 3 lb. at the present time. She has no symptoms referable to the lungs.

This isolated case is reported as a pathological curiosity from which no conclusions can be drawn. One cannot help wondering, however, whether an initial period of two months in bed in every case of pulmonary tuberculosis, even if afebrile, would not give better results than the method adopted in most English sanatoria of getting a patient on to his feet almost as soon as the temperature has fallen to normal.

I am indebted to Dr. MacWhirter for permission to report this case, occurring in his panel practice.

W. E. SNELL, M.D., M.R.C.P., D.P.H.
Royal Northern Hospital, N.7.

[1] *Journ. of R.A.M.C.*, 1934, lxii, No. 4.

Reviews

THE PLANNING OF EXPERIMENTS

A clinician or a medical laboratory worker who turns over the 250 pages of Professor R. A. FISHER'S new book[1] and discovers that more than 200 pages are devoted to the discussion of the yield of plots of land at Rothamsted Experimental Station will be apt to conclude that the work is no concern of his. If, having a few minutes to spare, he samples a few pages and discovers that, although a most sparing use is made of mathematical symbols or formulae, the author's argument requires a strenuous effort of attention to follow, his conclusion may be strengthened. It is, however, quite wrong. The adjectives "great," "masterly," and "epoch-making" may properly be abandoned to the Sunday reviewers of novels and poems, but it is safe to say that this book is one of the most important contributions to scientific methodology of our generation. The lessons the author has to teach are well epitomized in the following quotations.

"It is an essential condition of experimentation that the experimental material is known to be variable, but it is not known, in respect of any individual, in what direction his response to a given treatment will vary from the average. No direct allowance for this variability can, therefore, be made. The knowledge which guides us in increasing the precision of an experiment is not a knowledge of the individual peculiarities of particular experimental units, such as plots of land, experimental animals, coco-nut palms, or hospital patients, but a knowledge that there is less variation within certain aggregates of these than there is among different individuals belonging to different aggregates." (Page 78.)

"We are usually ignorant which, out of innumerable possible factors, may prove ultimately to be the most important, though we may have strong presuppositions that some few of them are particularly worthy of study. We have usually no knowledge that any one factor will exert its effect independently of all others that can be varied, or that its effects are particularly simply related to variations in these other factors. On the contrary, if single factors are chosen for investigation, it is not because we anticipate that the laws of nature can be expressed with any particular simplicity in terms of these variables, but because they are variables which can be controlled or measured with comparative ease. If the investigator, in these circumstances, confines his attention to any single factor, we may infer either that he is the unfortunate victim of a doctrinaire theory as to how experimentation should proceed, or that the time, material, or equipment at his disposal are too limited to allow him to give attention to more than one narrow aspect of his problem." (Page 97.)

"We may, by deliberately varying in each case some of the conditions of the experiment, achieve a wider inductive basis for our conclusions, without in any degree impairing their precision." (Page 107.)

Professor Fisher's object is to show how an experiment should be planned in order to get the utmost value out of the time and money available to conduct it, and he naturally illustrates his rules on the material with which he is personally most familiar. If a reader will take the trouble to work out completely such an arithmetical example as that on pages 143 *et seq.* (he must closely follow the author's instructions, for the printer has made some of the rubrics in Table XX rather misleading), he will learn more than pages of description can teach him as to economy in experimental planning. It is quite possible that some writer with perhaps a tenth of Professor Fisher's scientific insight but a surer instinctive perception of the difficulties common men have in grasping novel methods of thought, may have the same relation to him as Dumont is said to have had to Bentham. It is possible that an easier introduction to these methods will find a larger public. It will remain true that this volume is of immense value and must add to its author's already distinguished reputation.

[1] *The Design of Experiments.* By R. A. Fisher, Sc.D., F.R.S. Edinburgh and London: Oliver and Boyd. 1935. (Pp. 252. 12s. 6d. net.)

THE HUMAN FOOT

A surgical work bearing such a title as *The Foot*[2] immediately suggests an imposing volume, even a pair; or perhaps a small handbook on purely practical lines, like Sir Robert Jones's well-known manual on injuries to joints. Mr. NORMAN LAKE'S book is neither. Within the compass of a little over 300 pages space is found for chapters on the evolution of the foot, embryology and anatomy, footwear ancient and modern, gait, and a description of almost all the diseases and injuries that afflict the foot. Club-foot and paralytic deformities are not dealt with, as they are supposed not "to come into the purview of the practitioner and the general surgeon." Whatever the general surgeon may think of this the general practitioner will rightly maintain that he sees club feet before anyone else, and it seems a pity not to tell him what to do with them in the early days before the child is old enough to visit an orthopaedic surgeon regularly. Yet Madura foot is given a few lines, and such conditions as Freiberg's disease of the head of the second metatarsal bone are described in fair detail. Since the average experience of a surgeon who sees many abnormal feet may be represented as club-foot 100, Freiberg's disease 2, Madura foot 0, the suggestion in the preface that this book is essentially practical cannot be accepted without reservation. Neither is it encyclopaedic; for example, several operations are described with dangerous brevity, and there is a complete absence of references.

But whatever faults can be found with the pattern of this work the quality of the information presented is high, as would be expected of anything coming from the pen of Mr. Lake. At least one reader enjoyed the chapter on ancient and modern footwear; the reference in the chapter on gait to Elmslie's film showing the movements that take place in the lower limb during normal locomotion is most welcome; and the discussion on flat-foot is so good that it should be read by everybody. A concise description of the pathology of warts and another dealing with vascular conditions affecting the foot are but two more examples from an imposing collection of information. The surgeon may complain that Mr. Lake's book is too sketchy and dogmatic, the general practitioner that he cannot find just that detailed description of a common condition that will tell him what to do in his practice; and the inquiring masseuse or chiropodist who reads it may soon be out of her depth. Yet provided the reader realizes that this book was not written for the benefit of anyone in particular he will not be disappointed.

We entirely agree with the author when he says "there is abundant evidence that much industrial incapacity, in addition to social discomfort, is caused by diseases of the feet," and that the comparatively trivial lesions concerned receive but scant attention in the medical curriculum. For this very reason we have ventured to criticize in detail a book in which the author makes a serious attempt to remedy this state of affairs. It is much to be hoped that *The Foot* will reach a second edition. Perhaps the author will take that opportunity of altering the form of the book, either in the direction

[2] *The Foot.* By Norman C. Lake, M.D., M.S., D.Sc., F.R.C.S. London: Baillière, Tindall and Cox. 1935. (Pp. 321; 95 figures. 12s. 6d.)

of making it more complete or (as we should prefer) expanding the practical at the expense of the academic sections. And club-foot ought not to be left out in the cold.

STAINLESS STEEL IN ORTHODONTICS

One cannot but admire the whole-hearted enthusiasm with which Dr. DE COSTER pursues his objective and unfolds his arguments in his essay on *L'Orthodontie à Base D'Acier*[3] (the use of steel in orthodontics). That objective is to bring orthodontic treatment within the reach of all, and stainless steel is the medium which is to make this possible. His impulse is the conviction that a dental deformity is not a mere local affair, but of necessity has an injurious reaction on the whole organism, especially on the face and cranial vault—" I cannot understand," he says, " how in human medical practice the importance of the normal conformation of the head and of the face in the constitutional make-up of the individual has so long been neglected, while in veterinary practice an examination of the head plays a preponderating part in assessing the animal from the point of view of its constitutional qualities." Every part of the body must develop in harmony. A dental deformity must have its reaction in some other part of the developing organism, probably the cranial vault, and early orthodontic treatment will prevent a deep-seated interference with the working of the central mechanism of growth. To us the claim seems pitched too high, and it is fair to ask how many of Dr. De Coster's friends possess perfect dental arches and what proportion of them show stigmata of degeneration!

But if enthusiasts alone will agree with so far-reaching claims, every practitioner of orthodontics will be interested in his exposition of the actual use of stainless steel in this work. Joining one piece of stainless steel to another is the great difficulty in its use, and the author gives a clear, practical review of the methods hitherto worked out, recommending a method (of his own invention) for combining brazing with electric soldering (but here we do not gather what the liquid is that does away with the need of a current of hydrogen in the process). The method of making the metal rings used in the construction of " fixed appliances " seems to us especially noteworthy ; the illustrations are numerous, and often self-explanatory.

MORISON'S " INTRODUCTION TO SURGERY "

For the second edition of his *Introduction to Surgery* Professor RUTHERFORD MORISON had the assistance of his old pupil Professor C. F. M. SAINT of Capetown University, and both names appear again on the title-page of the third edition.[4] While not replacing the ordinary surgical textbook this publication is an important ancillary, for, to quote from the original preface, it claims to be an aid to the student " in thinking out for himself the problems presented to him in the wards and in his textbook." Its conception is to link up the understanding of groups of diseases. In this it is remarkably successful, and indeed the work is unique in imparting something that no other book does. Because it is so interesting it appeals to all students, who are helped to grasp the importance of surgical principles and their application ; also digestion of the principles enunciated assists them to surmount any surgical problem presented. For example, the general truth is emphasized that inflammation and its results are exactly the same no matter what part of the individual is affected.

The chapter on the basis of the principles of surgery has been rewritten and forms Chapter I of the new edition, making an excellent introduction to the subsequent chapters. New matter includes reference to the endocrine glands and non-malignant diseases of the breast. Under the latter heading the point is stressed that the breast may share pathological changes in *all* glandular organs of the body. The four methods of the dissemination of inflammation are ingeniously used in the discussion of the paths by which an irritant can be introduced into the tissues. The illustrations have been increased by forty-eight, and the new ones mostly apply to tertiary specific manifestations, tuberculosis, or malignant disease in the different situations. In many instances isolated illustrations in the previous edition have been grouped on one page, which tends to give the reader a better bird's-eye view of the conditions under consideration.

It would be invidious to single out any particular portion, but the chapters on the causation and effects of inflammation, of gangrene, and of mechanical intestinal obstruction are particularly good, as is that on the resemblance between syphilis, surgical tuberculosis, and malignant disease. The book is of attractive size ; the paper is good, and so are the printing and the illustrations. The small increase in its size is due to the larger number of illustrations. It well deserves a place on the bookshelf of every student, practitioner, or teacher.

A TEXTBOOK OF BACTERIOLOGY

The book with this title,[5] by Professor T. B. RICE of Indiana University, aims at presenting the medical student and the practitioner with what is essential in bacteriology. The technical side of the subject has been reduced to a bare minimum and controversial matter omitted in order to give adequate treatment to those aspects of the subject which have a direct bearing on the diagnosis, control, and treatment of infective processes in man. In general, one can say that the author has achieved his object. Starting with a short introductory account of the history of bacteriology, he passes to a consideration of such general matters as the role of bacteria in everyday life, the place of bacteriology in modern medical practice, disinfection, and the way in which bacteria cause disease. Some of these are quite good, and, in particular, the chapters devoted to the destruction of bacteria and to disinfection call for mention, since they are written in a thoroughly practical manner by one who obviously has first-hand knowledge of what he is talking about. These general questions occupy about a quarter of the book, and then come a series of chapters in which are discussed the various pathogenic bacteria and the diseases caused by them. Each of these chapters is constructed on the same lines. Opening with a brief historical sketch, the author then describes the main morphological and cultural features of the bacterial species in question. This is followed by a description of the way in which this micro-organism causes disease, and the chapter closes with sections on laboratory diagnosis, specific therapy, and prophylaxis.

The scheme is good, and in the main the information given is correct, up to date, and such as will prove valuable to the man in practice. There are some things, however, that are open to criticism. The chapter on streptococci is a little out of date in some respects, and

[3] *L'Orthodontie à Base D'Acier.* By Dr. Lucien De Coster. Paris: Masson et Cie. (Pp. 204 ; 107 figures. 30 fr.)

[4] *An Introduction to Surgery.* By Rutherford Morison, M.D., F.R.C.S., and Charles F. M. Saint, C.B.E., M.D., F.R.C.S. Third edition. Bristol: J. Wright and Sons Ltd. ; London: Simpkin Marshall Ltd. 1935. (Pp. 367 ; 231 figures. 15s. net.)

[5] *A Textbook of Bacteriology.* By Thurman B. Rice, A.M., M.D. Philadelphia and London: W. B. Saunders Company. 1935. (Pp. 551 ; 119 figures. 21s. net.)

it is surely a mistake to consider the paratyphoid bacilli apart from *B. typhosus*. Contrary to what the author says, *B. paratyphosus* B produces enteric fever and not acute gastro-enteritis ; there is therefore every reason for discussing it along with *B. typhosus* and *B. paratyphosus* A. And even though Noguchi made the mistake of attributing the cause of yellow fever to one of the leptospira, that is surely no reason for describing that disease in the chapter on leptospira or for suggesting that leptospira are common secondary invaders in yellow fever. The account of the filterable viruses is quite good: the author is evidently familiar with much recent work. But the reader will come across some rather surprising statements, one of which would attribute the greater incidence of post-vaccinial encephalitis in Europe to the use of rabbit-brain virus, a practice which, according to the author, has been imposed by the need for economy! And there is surely no excuse nowadays for confusing the virus of herpes with those of zoster and chicken-pox, nor is there any evidence that convalescent serum is of great value in psittacosis. The last hundred pages are concerned with immunity and its various practical applications.

The book contains a large number of black-and-white illustrations, some of which justify their inclusion. The drawings of the various bacteria are rather crude—"idealized," according to the author—and of doubtful value ; others, like that of the Schultz-Charlton reaction on page 155 and of the wheal showing protein sensitivity on page 491, are devoid of any value.

Notes on Books

Of recent years a considerable number of books have been published relating to the giving of instruction in schools or otherwise to children and to adolescents with regard to sexual matters and matters of general and personal hygiene. One such book, by Dr. G. O. Barber, medical officer to Felsted School, entitled *School Education in Hygiene and Sex*,[6] is worthy of notice if only by reason of its relative brevity and simplicity. It contains the substance of addresses given to the boys of that school by the author ; and it contains also an introduction by the Rev. Julian Bickersteth, head master of the school, and brief forewords by Sir Humphry Rolleston and by Dr. J. R. Rees. These prefaces, as well as the "preliminary argument" by the author himself, serve to indicate the character and purpose of the book. It is an attempt to dispel ignorance through a course of lectures of quite a general kind upon the body, given as routine class instruction. This "rules out the embarrassment and self-consciousness of the personal interview, and places sex life, mental and physical, in its natural place." The lectures are merely an outline of what such a method of instruction should become. They would require additions and alterations for adaptation to girls ; and, indeed, there is much to be added in any case. They present a slight sketch of "the laws of physiological righteousness," and Dr. Barber's presentation deserves the adjectives applied to it by Dr. Rees, "simple, direct, and valid." It should be helpful and suggestive to school medical officers, teachers, and parents, but it remains true, of course, that something more than knowledge is required to influence and control conduct.

The seventh edition of the Précis of Therapeutics and Pharmacology,[7] by A. RICHAUD and R. HAZARD, appears ten years after the sixth, and in fact represents a new book, since it has been almost entirely rewritten by Professor Hazard. The volume is arranged in sections dealing with general pharmacology, inorganic drugs, synthetic organic compounds, drugs of vegetable origin, of animal origin, and pharmacy. This arrangement is somewhat inconvenient, since a substance such as the antirachitic vitamin may be of animal or vegetable origin, whilst others such as adrenaline and thyroxine may be either natural or synthetic products. Furthermore, in the section on vegetable drugs the author has made a sacrifice to tradition in maintaining the classification by natural orders. Such difficulties in classification are understandable, however, in an old-established textbook, even after it has been thoroughly revised. Of the subject-matter it may be said that the textbook gives a full and up-to-date account of the pharmacological action of drugs, and in general follows the standard works of other countries. A special feature is the full account given of new synthetic organic drugs, and the description of their chemical constitution is rendered clear by a free use of structural formulae. In the past there has been a tendency for French pharmacology to show a certain detachment from the main current of international science, and the general style of this new edition is a welcome sign that that tendency is now being abandoned.

We have received three new parts of *Tabulae Biologicae Periodicae*,[8] which complete volume iv and form the first half of volume v. The chief articles of medical interest are two by T. A. Maass on poison gases and on hypersensitivity. The article on poison gases gives very extensive data regarding the toxic action of carbon monoxide. The article on hypersensitivity covers 119 pages, which are composed almost entirely of tabular matter. Many pages, for example, are occupied by lists of plants whose pollen can cause asthma and hay fever. Many of these data have been obtained from the *Journal of Allergy*. Five pages are devoted to a description of drug idiosyncrasy, and the author has also collected a very large amount of information regarding the production of anaphylaxis. The chief impression produced by a perusal of the article is surprise at the enormous volume of work that has been done on this subject. The volumes also include short articles on the chemical composition of foetal blood and the visibility of ultra-violet light by the human eye. Apart from these physiological articles there are articles of chemical, zoological, and botanical interest, the longest of which is a series of tables giving an exhaustive account of the mineral content of hundreds of plants.

Preparations and Appliances

NOVURIT

Novurit is a new mercurial diuretic marketed by Messrs. W. Martindale (50, Wigmore Street, W.1). It is the sodium salt of dicarboxylic acid methoxy-oxymercury allylamide ($C_{14}H_{24}O_5N\,HgNa$). The mercury content is 39.4 per cent. The vendors quote numerous clinical references in support of the preparation from Hungarian and Viennese literature. The drug can be given by intravenous or intramuscular injection, or by rectum in the form of a suppository. The special advantages claimed for this organic mercurial diuretic are its low toxicity and the fact that it can be administered per rectum.

HALIBUT-LIVER OIL

Halibut-liver oil is well known for its high vitamin content, and this fact is illustrated by recently published analyses of forty-six samples of halibut-liver oil (Evers *et al.*[9]). The average vitamin content per gram of oil was: vitamin A, 58,620 units, and vitamin D, 2,560 units. These averages are about twenty times as great as the corresponding figures for cod-liver oil. The figures show a striking seasonal variation in the vitamin A content, with a maximum of about 110,000 units per gram in May and a minimum of about 25,000 units per gram in November. This agrees with results obtained from similar analyses in the preceding year.

[6] *School Education in Hygiene and Sex. Lectures given at Felsted School.* By G. O. Barber, M.B., B.Chir., M.R.C.S., L.R.C.P. Cambridge: W. Heffer and Sons, Ltd. 1936. (Pp. 71. 2s. 6d. net.)

[7] *Précis de Thérapeutique et de Pharmacologie.* By A. Richaud and R. Hazard. Seventh edition. Paris: Masson et Cie. 1935. (Pp. 1,257 ; 34 figures. Broché, 85 fr. ; cartonne, 100 fr.)

[8] Den Haag: W. Junk. 1935. (RM. 55 ; subscription price, RM. 48.)

[9] "Characteristics of Halibut-liver Oils of the 1935 Season." By Norman Evers, A. G. Jones, and Wilfred Smith. *Analyst*, 1936, lxi, 7.

British Medical Journal

SATURDAY, FEBRUARY 22nd, 1936

DIAGNOSIS OF GASTRIC CANCER

The Melbourne meeting of the British Medical Association last year was memorable for the high standard reached in many of the papers and discussions. Dr. Kenneth Stuart Cross maintained this standard in his opening paper before the Section of Radiology. His address, which is published in this issue of the *Journal*, was both didactic and constructive.

Dr. Cross's first theme was the radiological diagnosis of early cancer of the stomach, which is closely linked with a problem that is exercising the minds of the profession generally—the earlier diagnosis of cancer of the stomach. Unfortunately the majority of gastric cancers when first seen are far advanced, and it is estimated that by the time the cases reach the surgeon, which practically corresponds to that of the *x*-ray demonstration of the presence of cancer, about 50 per cent. are obviously inoperable, and of the other 50 per cent., where laparotomy appears to be justified, it is found impossible, in one-half of the instances, to resect the growth. Cancer of the stomach begins in the submucosa, and tends to spread laterally in this layer before either coming to the surface and fungating into the lumen of the viscus or involving the peritoneal surface. Indeed in one particular variety, the leather bottle stomach, the growth is almost entirely confined to and generalized throughout the submucous layer. The infiltration which occurs causes local rigidity of the gastric wall, and it is this sign and the associated interruption of peristalsis at the site which must be hunted for most carefully in the radiological examination. Small areas on the lesser curvature may be found ; but on the greater curvature, where there is more normal mobility, or at the cardiac end, which is often difficult to fill with opaque material, or at the pyloric antrum, where a certain amount of rigidity is normal, there is much difficulty. This may be overcome sometimes by taking a series of pictures in one position of patient, tube, and film holder. The superimposition of the resulting radiographs may lead to the demonstration of a small rigid area. The next stage, which occurs in the majority of cases, is the heaping up of the mucous membrane, and this produces finger-print impressions in the lumen of the stomach with displacement of the opaque material at the site of the rigidity. At this stage the lymphatics and glands on the curvatures are becoming involved also, and extirpation by resection may be impossible. The mucosal pattern, which may be outlined by a small quantity of opaque material during the early filling or emptying stage of the barium meal, gives much less aid in diagnosis than it does in the case of gastric ulcer, polyposis, or gastritis. The heaped-up mucous membrane in the two latter conditions may give the appearance of a filling defect in single pictures, but the stomach is capable of filling and emptying—that is, the rigidity associated with carcinoma is lacking.

While radiological examination offers much more help in the diagnosis of carcinoma of the stomach than all other methods, short of looking, it is unfair to throw the whole responsibility upon the radiologist. He is entitled to a lead from the physician who sends him the patient as to the possible diagnosis. He will probably prefer to obtain the relevant portions of the history of the case for himself, but he should neither be treated as a servant nor be regarded as a wizard. He is entitled to be admitted as a colleague, and this is the second theme introduced by Dr. Cross. The all too frequent advanced gastric carcinoma and the obvious peptic ulcer are instances in which the report of the radiologist supplemented by the relevant film or print is enough. In many other cases, however, there may be some doubt as to the interpretation of extra-normal findings ; in these a conference between the practitioner, the radiologist, and the consultant will best obtain the proper view—between the dogmatism of the specialist on insufficient evidence and the indifference to slight abnormalities the significance of which is not fully assessed. Dr. Cross suggests that in case of doubt there should be a review by more detailed method ; and this is usually done either at once or after the lapse of sufficient interval to allow of recovery of the patient's skin and so to avoid any possible damage from *x*-ray burning. There is, however, the considerable economic factor of the expenditure of time and money in a service and with apparatus so costly in preparation and action ; while the period of waiting to a nervous and apprehensive patient may be very trying. The solution would seem rather to be investigation by a team of individuals, trained in their various jobs, with mutual trust and knowledge of each other's scope and deficiencies.

By thus calling attention to the urgent need of procuring the earlier diagnosis of cancer of the stomach, Dr. Cross has done good service in reviewing the lessons from the advances made in radiological technique and knowledge, and in demanding the co-operation of those in charge of the patient and the investigations. It is important, too, that the general public should be made aware of the advances of knowledge, and without being made apprehensive should appreciate the significance of the first insidious symptoms. So often does cancer to the lay mind mean a tumour, and vice versa, that deep-seated lesions may advance beyond the stage of operability before the patient seeks medical aid. Improvement in respect of this disease may be brought about by attaching proper significance to unexplainable or persistent indigestion which may have begun insidiously or abruptly after the fourth decade of life. Medical advice should be sought promptly under these circumstances ; and any patient who does not respond to simple treatment, or is not quickly benefited, should be urged to submit to a full investiga-

tion. Steps have been taken to arrange for a periodic overhaul of some classes of the community. This may be carried out without making people disease-conscious ; but such investigation can only be misleading if it is not thorough. To be thorough it would require the combined efforts of a trained team of workers and the resources of a large insurance scheme. In view of the extreme importance of the problem Dr. Cross's broad-minded address is timely, and may be commended to the consideration of a wider audience than those who heard it delivered.

A STATISTICAL CENTENARY

One hundred years ago 6 and 7 Will. IV, c. 86, the Act requiring the civil registration of births, marriages, and deaths in England and Wales, received the royal assent. Three years later the statistical first-fruits of this Act saw the light in a slim volume of 168 pages. In it the first Registrar-General describes the steps he has taken to carry out the provisions of the Act, how he has approved the formation of 553 registration districts and the appointments of registrars and superintendent registrars, whose qualifications were such as to "tend to secure such solvency and trustworthiness as must be imperatively required in an officer through whose hands public money must sometimes pass." Before the beginning of registration the Registrar-General's attention "was turned towards an object admitted to be of great importance to the improvement of medical science—namely, to obtain a faithful statement of the *cause of Death*." It was obvious to him that "such statements, in order to obtain due credit, ought to be derived, whenever it is possible, from the Medical Attendant of the deceased person, and that therefore it was only from the co-operation and assistance of the practising members of the Medical Profession that a satisfactory attainment of this important object could be expected." So aid was sought from the Royal Colleges and from the Society of Apothecaries, who approved the issue to all authorized practitioners of medicine and surgery throughout England and Wales of a circular letter earnestly advising every practitioner to place in the hands of those legally charged with the duty of registering deaths written statements of the causes of death. The Registrar-General had the "satisfaction of stating that the measures thus adopted have been eminently successful, and that even in this first year of registration—the commencement of a new system—the result is such as will not disappoint the expectations of those who hope to derive, eventually, from that source, materials of vast importance to the advancement of the science of Vital Statistics." Finally, "in order that these materials should be available for such beneficial purposes, it was obviously essential that they should be duly arranged. The execution of this task, for the first and second quarters, has been committed by me to Mr. Farr, a gentleman of the medical profession, whose scientific knowledge and intimate acquaintance with statistical inquiries were ample pledges of his peculiar fitness, and whose letter, including Abstracts of the Causes of Death, and explaining the classification which has been adopted, I have the honour to lay before your Lordship* in the Appendix to this Report." The medical object which Mr. Lister had in view has been the goal of all his successors ; the last sentence quoted records the happy accident which enabled us to approach nearer to the goal than any other nation.

The primary reason why our official vital and medical statistics are the envy of the world is that from the beginning those charged with the compilation and analysis of the data have neither under-rated nor over-rated the accuracy of their material, have never refrained from pointing out inferences little flattering to our national self-esteem, and have taken great care to reduce statistical arguments to their simplest possible terms. This intellectual honesty is, we may hope, a fairly common virtue. That in William Farr it was combined with scientific genius and a burning desire to convey information to others was a stroke of luck. The picturesque story of the real creator of our medical statistics is sufficiently well known. He entered the new office a young man with some reputation as a medical journalist, but without the orthodox credentials of a regular education, and his official position was humble. Within a few years the whole of the Annual Report was his alone, bearing the characteristic marks of his scientific and literary idiosyncrasies. When he retired the system was complete. In the last fifty years many improvements have been made, but they are logical developments of Farr's plan. The three parts of the latest available report contain 760 pages, three and a half times as many as the first ; the report has none of the exuberance of Farr, no quotations from Virgil, no onslaughts upon the city of Liverpool. But it has the intelligibility of Farr, and its statistical amplifications would have given him pleasure.

When Farr retired the British Medical Association presented him with a gold medal. Now, on the centenary of the Act which he did so much to make a means of scientific discovery, it would seem fitting to pay some tribute to his memory. The tribute which Farr would have valued most is not a statue, not even an edition of his works (however desirable that might be), but the acquirement by his countrymen, lay and professional, of the habit of reading—not talking about, but *reading*—the writings of his successors. The *text* of the present annual report is not more bulky than the reports of ninety years ago. Any intelligent man or woman could read it from cover to cover in a few hours. How many do? Although interest in social problems is more widely diffused than a generation ago, it is doubtful whether official documents have more serious readers. Our profession provides the information upon which the medical part of the Registrar-General's Annual Report is based. It is strange that so few of us have sufficient curiosity to know what use is made of our experience to be willing to read through a short book. We cannot fairly be asked

* The Home Secretary, Lord John Russell, to whom the earlier reports were officially addressed.

to interest ourselves in statistical algebra or to grapple with the analysis of variance. The Registrar-General does not expect that. He expects his reader to take some interest in the causes of mortality and in the factors, whether age, sex, geographical situation, economic status, or domestic housing, which increase or diminish rates of mortality. He might reasonably expect that many readers interested in such things would be found in the ranks of our profession. Let us hope that the second century of civil registration in England and Wales will be inaugurated by a large addition to the number of regular medical readers of the Annual Reports which were begun by William Farr.

PREVENTIVE SURGERY

"Surgery to prevent surgery" is one of Lord Moynihan's vivid phrases that have caught fire, and we can say to-day with some confidence that not only is the preventive side of clinical medicine coming into its own, but that concurrently with it may be observed a steady evolution of surgical procedures whose aim is to prevent more extensive or formidable operations at a later date. "A stitch in time" is as applicable to modern surgical practice as to many other things in life: it may not only be desirable in order to avert the need for many stitches later, but it is of course often necessary as an immediate life-saving measure. Perfect practice then becomes a twofold matter: instant recognition of the need for the stitch, and its timely and skilful application. Both are necessary, because "no amount of excellence in tactics will repair a fault in strategy," and the physician and surgeon clearly fall outside the ambit of Goethe's assertion that it is man's errors that make him truly lovable.

In his lecture on "Avoidable Disasters," delivered recently to the Ayrshire Division of the British Medical Association, and published this week at page 349, Mr. G. R. Girdlestone of Oxford draws attention to some common errors in diagnosis and to the disasters to which such mistakes lead. Mr. Girdlestone, as might be expected, considers his subject chiefly from the point of view of the orthopaedist, his examples including failure to recognize fractures or the onset of ischaemic contracture, or to administer anti-tetanus or anti-gas-gangrene serum early in wound treatment, or the well-known mistake of regarding acute osteomyelitis in its initial phases as acute rheumatism. The subject, however, is a wide one, extending far beyond the realms of orthopaedic surgery, and examples of avoidable disasters in all branches of practice will readily occur to the reader. There is good reason to believe that disasters are becoming fewer, and if for instance we consider those attributable to the mismanagement of fractures, we may not unreasonably look forward to a time when, with the spread of the knowledge of modern fracture treatment, there will be such a uniformly high level of practice throughout the country that a badly treated fracture will be almost a thing of the past. Mr. Girdlestone lays stress upon the very important fact that fractures when under treatment should be painless. Very often the patient expects his broken bone to be painful, and is prepared for, and accepts, discomfort which, were it reported, would draw attention to the need for interference with the treatment. His practitioner likewise is tempted to administer analgesia rather than inspect the local condition, but pain should be regarded as a warning signal just as important in a fractured bone under treatment as in a patient suffering from cardiac disorder. In either case, if the pain is masked in any way and the warning overlooked disaster may result.

In recent times probably the greatest advances in medicine, so far as these concern the bulk of patients, have been along lines of improved efficiency in the recognition of the earliest manifestations of ill-health and in more effective attempts to ward off or cut short disease. Much more remains to be accomplished in both directions; but we may hope that the many hours of patient labour which the Curriculum Committee of the General Medical Council, the conference of representatives of universities and licensing bodies, and the Committee on Medical Education appointed by the British Medical Association have applied to reforming the student's curriculum will ultimately bring about an all-round improvement in early diagnosis and in preventive clinical practice—medical, surgical, and obstetrical. Then avoidable disasters will become fewer and fewer, and there will be less occasion to remember the words of King Edward VII, when speaking of a particular disease: "If preventable, why not prevented?"

MODERN METHODS IN BOTTLE-FEEDING

While it is true that the first consideration for a baby fed unnaturally is the individual study of his needs, there are certain principles which must be observed in the preparation of a milk mixture. In theory, cow's milk can be modified by such additions of water, carbohydrate, and fat as will make the percentage composition resemble that of human milk, and this method of infant feeding is the basis of the well-known Truby King dietary, which in this country is promulgated by the Mothercraft Training Society. Percentage feeding, however, overlooks the variation in the type of protein in human and in cow's milk: it is true that the latter has a total protein content two to three times as large as that of human milk, but the nature of the protein is quite different, and certain amino-acids are relatively deficient in cow's milk when compared with the human product. No one has ever produced scientific evidence that a moderate excess of protein in the diet does any harm, but protein deficiency will undoubtedly lead in the long run to slower growth, to a decreased resistance to infection, and possibly to other disorders less easily recognized. Dilute milk-and-water mixtures—that is, equal parts of each—present a risk of protein deficiency, and stronger mixtures are advocated by the majority of children's physicians in this country. These remarks are prompted by a recent paper by Dr. E. Fitzgerald[1] which was read before a conference in Dunedin, and

[1] *New Zealand Med. Journ.*, December, 1935, xxxiv, 388.

the expression of dissatisfaction with the Truby King dietary having been made in New Zealand it can perhaps be echoed in this country without raising a cry of iconoclasm. Indeed, in an editorial comment on Dr. Fitzgerald's paper a strong plea is made that the Plunket Society (which does in New Zealand very much the work which the Mothercraft Training Society does here) should reconsider its standard teaching and be prepared to modify it in the light of recent investigation and experience. It is apparently felt by practitioners in New Zealand that if they use modern methods of infant feeding recommended by authorities of world-wide repute they meet with antagonism from the Plunket Society and open hostility from the Plunket nurses, who apparently forget that the first duty of a nurse is to carry out the instructions of the doctor. In this country, too, practitioners have occasionally met with some degree of hostility from nurses and "nannies" trained in the strict Truby King school with regard to the strength of milk mixtures. The plea made in New Zealand for a reconsideration of this one aspect of the Truby King programme will certainly be supported by most children's specialists in Great Britain. So much valuable work is done by the Mothercraft Training Society in every other respect that it would be a pity if this question of bottle-feeding acted as a source of friction.

NEW DIGITS FOR OLD

A new digit to replace an old or damaged one would seem all to be desired, especially if the replacing digit could be sacrificed without appreciable disadvantage while the new digit would be of definite functional value. Such a condition of affairs would exist if a comparatively useless toe could be made to replace successfully a damaged finger. From time to time attempts have been made to bring about this replacement, and recently a report comes from Russia of a successful case.[1] The surgeon, Professor M. I. Kuslik of Leningrad, is to be congratulated on a fine effort. His patient, a girl aged 17, as the result of an accident while tobogganing, had an unsightly stump in place of her left index finger. The greater part of her second left toe was successfully transplanted on to the freshened stump of the index finger, the extensor tendons being first joined, while a plantar flap provided nourishment at the site of junction. The finger and toe were maintained in apposition by a plaster jacket for some five weeks, after which the plantar attachment of the toe was severed and the flexor tendons were united. The procedure must have called for much patience and perseverance on the part of the patient as well as the surgeon, but the result seems to have justified such expenditure, because photographs show the reconstructed index finger in use, and it both looks well and appears to be very serviceable. Professor Kuslik comments also upon the fact that the mental state of the patient was greatly improved; she had previously been much depressed by the appearance of the stump of her forefinger. Thus the new lamp in place of the old apparently carried none of the disadvantages which followed the exchange in the fairy-tale. Professor Kuslik's case is not the first of its kind, but appears to have been one of the most successful. Since 1897, when Nicoladoni first suggested the practicability of the transference, there have been numerous reported efforts, and up to 1930 Professor Kuslik had been able to trace seventeen, two of which had been those of colleagues of his in Russia. From his review of previous attempts and his own experience the reporter of this successful case concludes that the transference is practicable and desirable in certain cases. He believes that the best toe to use is the second; that the flap should be a plantar one; that osseous, tendinous, and cutaneous suturing should not be along coincident lines; that periosteal cuffs should be fashioned and sutured over the line of bony apposition; and that plaster fixation should be used, since it not only assists union by effective immobilization, but helps the patient to endure the ordeal which the rather cramped position demands.

[1] *Arch. of Surg.*, January, 1936, p. 123.

STERILIZATION IN SWITZERLAND

The canton of Vaud was the first community in Europe to legalize the sterilization of persons suffering from mental disorder and defect. Moreover, this legislation did no more than regularize a practice which already existed throughout a large part of Switzerland. Practical experience from Vaud[1] therefore appears to have some value as evidence for or against compulsory sterilization. Dr. H. Steck, in a survey of results, states that only incurable persons may be sterilized, and only if their offspring is bound to be tainted. The majority of the persons sterilized between 1919 and the end of 1934 were mentally defective women, and the figures for the last five years show in addition seven cases of women sterilized for schizophrenia (five after termination of pregnancy), one for manic-depressive psychosis, one for epilepsy, and two for congenital mental instability. Of the three males, one was sterilized for mental deficiency, and two were mental defectives who were castrated after conviction for sexual delinquency. During the five years ending with 1934, eighty-eight applications were made and forty-six were granted. To ensure that the law shall not be abused, the health authority of the canton is charged with the strict supervision of very case. Each application is accompanied by a medical certificate; two experts—a psychiatrist and a gynaecologist—make an examination, and the authority acts on their report at its discretion. In any event it has no power to order, but only to authorize, the operation. It always requires the consent of a parent or guardian and the written consent of the patient. For psychiatric reasons it does not approve a compulsory operation on a mental patient, and, when liberty depends on giving the consent, this is not often withheld. In investigating cases the experts construct a family tree with the help of the family doctor and the local health authorities. So far, the law has been administered with great caution and only in cases in which the heredity seemed hopelessly tainted. Dr. François Naville,[2] reviewing the results of the castration of 100 sexual delinquents and abnormals, reports excellent results: delinquency of every form has disappeared in nearly all cases; the patients can nearly always be set free to rehabilitate themselves; physical health is not impaired, and the nervous and mental

[1] *Rev. Méd. de la Suisse Romande*, 1935, lv, 874.
[2] *Journ. de Méd. de Lyon*, 1935, vi, 711.

disturbances are at the worst slight and transitory. He quotes some confirmatory figures from Scandinavia and Germany. Evidence seems to be accumulating that sterilization and castration are of value when applied with great discretion in suitable cases. Obviously, good judgement and experience in their use are of the greatest importance. This country, with its long tradition of personal liberty, is perhaps more reluctant than any other to adopt such a method; and, so far as we can judge, public opinion does not yet believe that any authority, however competent, is fit to decide that a person, however sexually deranged, should be deprived of sexual or reproductive capacity.

THE BERGER RHYTHM

The elucidation of this peculiar phenomenon, first described by Berger, is still in progress, and although we are yet far from clear on its essential significance, it will be of interest to consider the two main views at present held. By the Berger rhythm is meant a characteristic oscillation of electric potential on the surface of the head; the period of this oscillation is 10 per second, and the amplitude is from 0.05 to 0.1 millivolt when the subject is at rest with the eyes closed. This rhythm is recorded with the oscillograph and disappears when the eyes are opened or when, the eyes being closed, the attention is fully concentrated by some activity other than visual. Berger showed that these regular potential waves originated in the brain, and thinks that the whole cortex is involved; he considers that the whole cortex, when active, gives rise to a potential rhythm of 10 a second, and that the disappearance of the rhythm when the eyes are opened is due to an inhibitory effect arising from the excited visual area in the cortex. According to this hypothesis the Berger rhythm is to be looked upon as due to a spontaneous rhythmic discharge from the whole cortex subject to disturbance or inhibition from areas of specialized activities in the cortex. The fact that the rhythm disappears entirely during deep sleep or narcosis supports the view that it is somehow related to general neuronic activity, but it may be necessary to adopt a different attitude in explanation of the rhythm in waking life. The hypothesis put forward by Adrian and his co-workers is that the Berger rhythm is a spontaneous discharge from a large group of neurones in the occipital lobe, and that this group is mainly concerned with vision. It is conceived that when the eyes are closed these neurones are relatively undisturbed and so become free to beat in unison at their natural period; when the eyes are opened, however, the different units must work at different rates, and a synchronous beat is no longer possible. In the most recent of his contributions to this subject Adrian,[1] with K. Yamagiwa, points out that the potential changes are more marked over the occipital lobe than over the frontal; that no stimulus is so effective in abolishing the rhythm as vision; that a rhythm of potential waves with the same general distribution over the head can be induced by a flickering source of light, the frequency now becoming that of the flicker; and that the focus of the rhythmic activity may shift over a fairly wide area at the back of the head. This latter fact was elicited by simultaneous records from different points on the head, and by finding that changes of phase took place from time to time. The position of the focus of activity at any one time can be approximately determined, at all events on the surface of the head, by taking simultaneous oscillograph records from several groups of two points. As long as the records are from points on the up grade to the focus, all the Berger rhythm will be in phase, but if the focus falls in one of the chosen two-point sections there will be a reversal of phase. From a large number of records obtained in this way the conclusion was drawn that the potential gradient on the scalp comes to a focus at about 13 inches from the nasion on the nasion-inion line. By similar studies of potential distribution on the lateral aspect of the skull, it was concluded that the focus of activity on either side shifts about in an area extending laterally for two to two and a half inches, and upwards from the inion for about two inches. That the phenomenon is due to cortical potentials was shown by demonstrating on a cadaver a similar potential distribution on the skull surface when a source of oscillating potential was placed inside the skull. This artificial source of potential could be located with relatively greater accuracy by using the simultaneous record technique. Thus Adrian has strengthened his view that the Berger rhythm arises from some state of activity in the occipital region of the cortex. But it must be pointed out that the hypothesis that the rhythm is abolished on opening the eyes because the excitation in the occipital region would then not be uniform, and so the necessary synchronism would be lost, is still merely a hypothesis. And, indeed, Adrian states that the alternative view that opening the eyes causes a direct inhibition of the whole active area cannot be altogether ruled out, though such a direct effect seems unlikely. Adrian's views on the synchronization of neuronic potentials seem particularly applicable when we consider such phenomena as epileptiform convulsions. Berger has recently shown that in these convulsive states the large potential waves which travel over the cortex can be readily detected through the skull, and it would seem that these are due to abnormal degrees of synchronization. It will be of great interest to see if a desynchronizing mechanism can be found for epilepsy like that for vision for the Berger rhythm.

[1] *Brain*, 1935, lviii, 323.

DISINFECTANT ACTION OF WINE

W. Dietze has carried out a number of experiments to find out whether wine can be relied upon, as is stated by certain observers, to destroy pathogenic organisms in water.[1] The general technique was to add 0.5 c.cm. of a twenty-four-hour broth culture of the organism to be tested to 10 c.cm. of the wine, and to make subcultures at intervals into a suitable nutrient medium, using three loopfuls of a 3 mm. diameter loop. Several different organisms were used, but it will suffice to describe the results obtained with the typhoid bacillus. Preliminary experiments with alcohol showed that typhoid bacilli were destroyed by exposure to 50 per cent. alcohol in half a minute, to 40 per cent. alcohol in under five minutes, to 30 per cent. alcohol in about one hour, to 20 per cent. alcohol in between five to twenty-four hours, and to 10 per cent. alcohol in

[1] *Zentralbl. f. Bakt.*, IIte Abt., January 3rd, 1936.

between two and three days. Five wines were chosen. Four of them were white—namely, Dackenheimer, Wachenheimer, Scharzberger, and Schlosz Vollradser—and one of them was red—namely, Büdesheimer. Their alcohol content varied by volume from 8.33 to 11.31 per cent., their total acidity in grams per litre from 5.40 to 10.05, and their *p*H from 2.78 to 3.49. A considerable difference was observed between the disinfectant action of the five wines. Typhoid bacilli were killed by the pure wine in fifteen to forty-five minutes, by wine diluted with an equal quantity of water in one and a half to two and a half hours, and by a mixture of wine and water in the proportion of 1 : 3 in three and a half hours to two days. The red wine, which had the highest alcohol content but the lowest H-ion concentration—that is, highest *p*H—was the least active. Comparisons of these results with those obtained in the preliminary experiments with alcohol showed that in general the disinfectant activity of the wines was about three times as great as could be accounted for by their alcohol content. This indicates that the acid of the wine must have played a considerable part in the destruction of the bacteria. In practice the final outcome is probably determined by the joint alcohol and acid concentrations. It would appear that the disinfectant action of ordinary Rhine wine is not very high, but it must be remembered that in practice water would rarely contain such a large number of typhoid bacilli as was used in these tests. The conclusion seems to be that, if wine is to be used for sterilizing a doubtful water supply, the mixture had better be made after breakfast if it is to be reasonably safe by lunch time.

PARATHYROIDECTOMY FOR ANKYLOSING POLYARTHRITIS

The beneficial effects which have followed the operation of parathyroidectomy in osteitis deformans have led surgeons to try the same procedure for the relief of what is described as ankylosing arthritis. Oppel was the first to claim satisfactory results for this method of treatment, and recently Fédoroff has published notes of 121 cases from the Clinique Oppel in Leningrad: of these, eighty-four had reported at intervals after the operation varying from six months to ten years ; the remaining thirty-seven could not be traced. Amelioration from the time of the operation to the date of reporting was experienced by thirty-nine patients ; the disease had ceased to progress in a further nineteen, and seventeen were worse. Nine had died since the operation from causes not connected with it. The nature of relief following the operation was lessening of muscular stiffness ; no effect upon the actual ankylosis is claimed. The calcium content of the serum was raised above 11 milligrams per cent. in forty-eight cases. If, however, we accept Schelling's observations, the upper limit of normal is 12 mg. per cent., and at this level only twenty-five of Fédoroff's cases can be taken as showing hypercalcaemia. All but ten patients were cases of ankylosing spondylitis, and other forms of spondylitis were excluded ; this precaution had not been taken in some other reports, which include conditions definitely not of this type. The results claimed cannot be regarded as convincing, and more proof is required that the serum calcium in ankylosing spondylitis is raised above normal: some observers deny that this is so. Bauer says that transient elevations of serum calcium may be due to failure to obtain fasting blood samples or to errors in technique. He found no changes in either calcium or phosphorus content of the serum in rheumatoid or osteo-arthritis of a degree to justify a diagnosis of parathyroidism, but Fédoroff's cases should not be classed in either of these categories. Compère, however, states that Bauer and his colleagues found a positive calcium balance in every case of ankylosing polyarthritis. On the other hand, Funsten states that " arthritis " is very common in parathyroid disease. Criticism is forthcoming from another aspect: in two out of three patients operated on by Leriche no parathyroid tissue was found in the material removed, but all showed hypercalcaemia and were subjectively improved by the operation ; the third relapsed six months after the operation, and later equal improvement was obtained by parathyroid hormone therapy. Ssamarin failed to find parathyroid tissue in many of the cases operated on by Oppel, but improvement in these was comparable with that in cases where definite parathyroid tissue was found. Improvement may be due to anaesthesia, to rest in bed, possibly to a desensitizing shock effect, or to the natural remissions which are characteristic of the disease. It is obvious that a careful study of calcium and phosphorus metabolism in ankylosing forms of arthritis needs to be made and not merely isolated tests of calcium in serum ; greater care in nomenclature is also required. Ankylosing polyarthritis must not be classed loosely with rheumatoid or osteo-arthritis: there are important differences. The latter point is well illustrated by Nachlas, who describes " arthritis " as a variety of diseases which differ not only in their pathology but also in their aetiology: the sole common denominator is their visible point of attack—namely, joint surfaces. At present, parathyroidectomy in any form of arthritis is a matter for research and skilled investigation, and must not be looked upon as a proved method of treatment.

Dr. Cecil Price-Jones will deliver the eleventh biennial Sydney Ringer Memorial Lecture, on " The Sizes of Red Blood Cells," in the lecture theatre of University College Hospital Medical School on Friday, February 28th, at 5 p.m., with Sir Robert Muir in the chair. The lecture is open to practitioners and medical students.

In compliance with the terms of a gift under the will of the late Francis Amory of Beverly, Massachusetts, the American Academy of Arts and Sciences offers a prize for outstanding work with reference to the alleviation or cure of diseases affecting the human genital organs, to be known as the Francis Amory Septennial Prize. The prize may be awarded to any individual or individuals for work of " extraordinary or exceptional merit " in this field. In case there is work of a quality to warrant it, the first award will be made in 1940. The total amount of the award will exceed ten thousand dollars, and may be given in one or more awards. It rests solely within the discretion of the Academy whether an award shall be made at the end of any given seven-year period, and also whether on any occasion the prize shall be given to more than a single individual. While there will be no formal nominations, and no formal essays or treatises will be required, the committee invites suggestions, which should be made to the Amory Fund Committee, care of the American Academy of Arts and Sciences, 28, Newbury Street, Boston, Massachusetts, U.S.A.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some diseases of the digestive system met with in general practice.

TREATMENT OF CHRONIC CONSTIPATION*

BY

ROBERT HUTCHISON, M.D., F.R.C.P.

Before beginning the treatment of a case of alleged constipation one should ascertain whether the patient really is constipated or only believes himself to be so. He should therefore be instructed to stop all aperients for three days, taking only a teaspoonful or two of paraffin at night to keep the contents of the bowel soft. If at the end of that time there has been no proper relief, constipation may be diagnosed. If the rectum is full of faeces it is a case of dyschezia ; if not, of colon constipation, of which there are two varieties: (1) atonic ; (2) spastic.

Atonic Constipation

GENERAL MANAGEMENT

Insist on the patient's making a regular daily attempt at evacuation and giving enough time to the act. See also that the seat is not too low nor the closet too cold. It may be necessary to advise more exercise, especially such as is calculated to strengthen the abdominal muscles. Massage is often useful if the abdomen is flabby and distended. It may be done by the patient himself lying on his back in bed night and morning and following the course of the colon by deep rotary movements of the hand from right to left ; or a rubber ball filled with shot may be rolled round and round the abdomen instead.

DIET

The food should contain a sufficiency of "roughage," of water, and of the laxative principles contained in fruits. Green vegetables and fruits, especially cooked fruits and raisins, should therefore be taken freely, and wholemeal bread substituted for white. If the motions are dry the consumption of water should be increased, and if the local water is hard a distilled (for example, Salutaris) or natural water (for example, Malvern) substituted for it. Fats also are helpful when the motions are small and dry, and may be taken in the form of bacon fat, butter, and olive oil.

On the other hand, all foods which have a constipating effect, either from their leaving a small residue or from their containing an excess of such astringents as lime or tannic acid, should be avoided. Milk, eggs, strong tea, and red wines come under this head. It is only in the slighter cases of constipation that dietetic treatment alone is likely to succeed, and if it fails it may aggravate the trouble by producing a large and bulky residue which the enfeebled bowel has difficulty in propelling.

DRUGS

These are usually indispensable, but patients are sometimes reluctant to take them regularly. It may be necessary, therefore, to point out that, rightly used, their object is to educate the bowel into acting by itself, and this can only be achieved by persevering in the use of the medicine. One should aim, if possible, at producing a natural and formed motion. There is an immense number of aperients and laxatives, but for practical purposes they may be grouped thus:

1. *Salines.*—These include the sulphates of magnesium and sodium, the tartrates of potassium, the citrate of magnesium, and the phosphate of sodium. For habitual use the sulphates are usually employed, either in the form of a natural water (Hunyadi, Aquaperia, etc.), in the effervescing form, or as one of the numerous proprietary preparations. They are specially suitable in plethoric subjects or where there is a tendency to hepatic or portal congestion, but should be avoided by old, debilitated, or nervous subjects. They suit men better than women, and are best given before breakfast and well diluted.

2. *The Anthracene Group.*—This includes such well-known drugs as aloe, cascara, senna, rhubarb, and phenolphthalein. These are among the most suitable of all aperients for regular use, but it is well to "ring the changes" on them, as the bowel readily becomes accustomed to any given drug and ceases to respond to it. Idiosyncrasy also plays a part, and an aperient which suits one patient does not necessarily suit another.

Aloe is the active ingredient of many "dinner pills" and proprietary remedies. It is an admirable tonic laxative, but is slow in action. It should be avoided in cases of piles and of pregnancy. Cascara is best given in liquid form (for example, cascara evacuant), so that the patient can regulate the dose for himself. It acts quickly enough if given at bedtime. Senna is best used in the form of the pods. An infusion of these for three hours in cold water will contain the laxative principle and does not gripe. It is well suited to women. Lixen (A. & H.) is a ready-made preparation derived from the pods. Rhubarb enters into many official preparations—for example, pil. rhei co. and pulv. rhei co. It is specially useful in children and where there is a tendency to excessive mucus secretion in the bowel.

3. *Mechanical Aperients.*—These act either as lubricants (for example, paraffin) or by swelling up and stimulating the bowel by their bulk (for example, agar-agar). In theory they are the most "natural" of all laxatives, but they may fail in the more severe cases. Paraffin may be given either as the pure oil or as one of the numerous emulsions on the market, or made up with malt extract, in which form it is specially suitable for children. It should be avoided in the case of "bilious" subjects. Some patients object to it because of "seeping." This is less likely to happen if it is taken in a little warm milk after meals and distributed throughout the day. Of the purely mechanical laxatives which act by increasing the bulk of the faeces one has a choice of various agar preparations or of normacol (a vegetable mucilage known as bassorin) or isogel, or a French preparation coréine. These are all very similar in action, and are given in doses of 1 to 2 teaspoonfuls after each meal.

Other aperients, not belonging to any of the above groups, are sulphur and castor oil. Sulphur is given as the confection or in lozenge form. It has the property of making the motions soft, and is therefore often prescribed, with or without the addition of confection of senna, in cases of haemorrhoids and anal fissure. It also enters

* This article is reprinted from the *Index of Treatment*, by kind permission of the Editor, Dr. Hutchison, and the publishers, John Wright and Sons Ltd.

into the composition of compound liquorice powder, which is a useful regular laxative in children. Castor oil is more of use as an occasional purgative than as a regular laxative. It often acts well, however, for the latter purpose in the case of constipation in elderly patients. It may be given either in capsules (20 minims), two or three at bedtime, or mixed with an equal quantity of glycerin in such dose as is found suitable.

Spastic Constipation

General Management.—As this form of colon disorder tends to occur especially in neurotic subjects with irritable or exhausted nervous systems, rest is usually indicated. In severe cases it may be necessary to send the patient to bed with hot applications to the abdomen to allay pain. In milder cases it may suffice to send him away for a holiday or merely to rearrange his day so that he gets more rest. Abdominal massage is contraindicated.

Diet.—The diet must be the reverse of that for the atonic form of constipation, all "roughage" being as far as possible eliminated. Raw fruit and vegetables should therefore be avoided, and cooked vegetables taken only in purée form; cooked fruits should be sieved. White bread must take the place of brown. Fats are useful, and should be taken freely if the patient can tolerate them.

Drugs.—The mechanical aperients are the most suitable, or one of the milder of the anthracene group, such as an infusion of senna pods. Belladonna should be given to relax spasm, beginning with 5 minims of the tincture two or three times daily and increasing it if necessary. It may also be given in the form of the extract, 1/2 grain in pill, night and morning.

Enemata.—If the spasm is in the sigmoid an enema of 6 oz. of paraffin or olive oil may be run into the bowel and left there all night, a pad being worn to prevent soiling. It may be gently washed out next morning with warm normal saline.

Dyschezia

Dyschezia or rectal constipation enters into most obstinate cases of the disorder, especially in women in whom the abdominal wall has been left weak after childbirth. Such patients can only empty the bowel if its contents are first made fluid by a large dose of aperient. In order to avoid this one should only prescribe such a dose of laxative as is sufficient to bring the contents of the bowel down into the pelvic colon and then remove them either by the aid of a glycerin suppository or by the injection of not more than half a pint of plain warm water, which may be done either with a pear-shaped rectal syringe or a ball syringe.

WHITHER MIDWIFERY?*

BY

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During recent years there has been a determined effort to make the subject of maternity one of paramount importance. Official statistics have convinced the general public at last that something is radically wrong.

Anyone on the staff of that peace-time casualty station, a maternity hospital, has abundant evidence that many pregnant women do not get proper medical supervision, that many recently delivered women do not receive adequate nursing, and that there is a deplorable lack of co-ordination and co-operation between the medical and nursing services concerned. This is a criticism not of doctors nor of midwives, but of a system.

The Newcastle Policy

Fortunately in their early efforts to improve matters the local health authorities sought the assistance of consultants, academicians, and honoraries from the staff of a maternity hospital. Had it been otherwise the policy of the Durham school might not have come into being nor this address have been possible.

The local consultants were invited to act in a consultative capacity for puerperal pyrexia, or to run ante-natal centres, either as ante-natal officers or as consultants. The demand was enormous, and at one stage could not be met. The duties entailed were in one respect purely expert and consultative, and in others well within the scope of general practitioners. The position was embarrassing and difficult because it was felt at that time that failure to meet the demands would or might result in a whole-time officer being appointed, thus cutting off a wide field of consultant practice.

At this stage a clear definition of the relationship of consultants towards the project, with special reference to their academic, institutional, and private interests, was demanded. It was agreed that in any rate-paid service providing consultations with doctors the consultants would form a panel, which would give the doctors freedom of choice. Such a policy has governed all agreements entered into during the past ten years for providing expert advice for general practitioners at centres, or in the patients' homes, or at the consultants' rooms. Certain earlier agreements not in keeping with this policy are in the process of being corrected.

Consultations in Puerperal Pyrexia

A start was made with consultations in cases of puerperal pyrexia. This was both educative and stimulating. Hitherto consultants had seen these cases only at the maternity hospital; now they were able to see them at an earlier stage, and to appreciate the difficulties with which the general practitioner has to contend. Making full allowance for the value of expert advice, it was only too obvious that what the patients needed most was good nursing and not consultants.

These consultations were obviously provided to popularize the notification of puerperal pyrexia as opposed to the old and mainly ignored notification of puerperal fever. Only those actively engaged in the work can appreciate that nursing, not notification, is the solution of the problem.

This freeing of expert service from the confines of a maternity hospital for patients of the hospital class suggested the need for expert service being available at all stages and for all conditions. The bulk of midwifery was dealt with in the patients' homes, while the services of specialists, outside a maternity hospital, were only available for patients of the wealthier classes. The faults of the existing system were flagrant and required remedying. Pregnant women too ill to travel were sent by ambulance to hospital to get expert advice. "Failed forceps" cases were all too frequent admissions, while women developing complications during the puerperium, even in areas where the health authorities had arranged for expert advice in cases of puerperal pyrexia, were unprovided for because the complication was apyrexial.

* Being the substance of a paper read before the North of England Branch of the British Medical Association, December, 1935.

Another aspect, and one too readily overlooked, was that many women are particularly sensitive at this time, and dread the publicity and the possible presence of students at hospitals. A further matter of vital importance was that many women were lost every year owing to the absence of any provision to combat shock and haemorrhage, which any doctor may have to contend with in a working-class house. Expert advice and, still more important, the necessary adjuvants, are usually lacking ; the only possible alternative is to send a shocked and exsanguinated patient to a maternity hospital.

Maternity Emergency Service

In the *British Medical Journal* (April 13th, 1929, p. 691) I advocated a comprehensive scheme of expert service to meet all these points. Several health authorities have since adopted the proposals, and offer doctors the advice and, where necessary, the operative assistance of experts for patients of the hospital class, at all stages and for all conditions in their homes. Some have agreed to the suggestion regarding sensitive patients, and allow doctors to send patients who are fit to travel to have private consultations on ante-natal or post-natal conditions at a special fee, which is paid by the health authority. Lastly, an emergency service has been organized, and has been adopted by the Health Committee of Newcastle, whereby any doctor faced with a grave crisis can, by 'phoning the maternity hospital, have at his disposal within a very short time a nurse, a complete outfit for combating shock and haemorrhage, and if necessary an expert. In the Newcastle area, Wallsend was the first public authority to provide, in 1929, expert advice and assistance at all stages and for all conditions either in the patients' homes or, where desirable, at the consultants' rooms. Newcastle-on-Tyne, in 1935, was the first to adopt the emergency service scheme. Newburn-on Tyne, in the same year, adopted the complete scheme of expert assistance both for routine and for emergency work. As regards the outlying areas, Northumberland County accepted the comprehensive scheme almost in its entirety in 1929, and will have the complete service, including the emergency service, in the near future. Durham County has arranged for expert advice for cases of puerperal pyrexia. The area supplied in this respect by the Durham school, so far as expert service is concerned, extends sixty to seventy miles into Northumberland County and forty to fifty miles into Durham County, as measured from Newcastle.

The General Practitioner

As regards the general practitioner's place in the new order it was obvious that this was apt to be overlooked. It was almost inevitable that in the early stages ante-natal centres should be staffed by whole-time officers or specialists, and here and there an individual practitioner, this last being far from popular either with the health authorities or with the general medical community. However staffed they had the great defect of widening the gulf between doctors and midwives, the latter thereby acquiring an enhanced position by being made even more independent of the local doctor. Hitherto midwives could not get organized medical supervision of their cases, as they were only able to seek medical advice when one or other of their rules became operative.

Propaganda was essential because the work was not being done effectively, but the fault was just as much attributable to the medical schools, the health authorities, and the midwives as to the doctors. If, as seemed likely, the profession was to be still further isolated from the preliminary stages of a responsibility which they might be called upon to assume at the request of a midwife, then some policy was called for.

In 1929 I and my colleagues initiated a policy which may be regarded as the policy of the Durham school. The essential features were as follows. The consultants would guarantee attendance at the centre which it was proposed to open. They would attend every week to start with, then fortnightly, later monthly, and retire at the end of a year, to be available—on a panel—as consultants to the service. The local doctors who wished to take part would be invited to attend during the consultant session and would receive instruction in ante-natal care, but as soon as possible they would be given their own day and hour of attendance, to which the consultants would refer those cases which they saw on the routine day. The midwives would also be notified and encouraged to bring their cases, and it would be arranged that the subsequent ante-natal care would be carried out by the doctor who would be called in if complications arose.

The scheme was given a trial at Wallsend in 1929, and there has been since then a regular clinic attended by a team of local doctors. A similar procedure was carried out at Ashington, a large colliery town, with equal success, and recently at Newburn, also a colliery town. At Gosforth, a suburb of Newcastle, the work was slowly transferred by an individual consultant into the hands of general practitioners, and the consultant service of an open panel was adopted.

While the policy was at work it was obvious that it was not universally applicable or even desirable. The medical officer of health for Tynemouth studied the policy and adopted the consultant service, but developed a system of attendance of the local doctors at the ante-natal centre (the hospital) without the aid of consultants. In other areas, such as Blyth, a busy seaport town, the medical officer of health has depended more on the doctors and less on a centre, but has placed the consultant service at the disposal of the doctors.

Here, therefore, we see the problem of providing an efficient maternity service tackled in various ways. Each has points to commend it, each has points which are subject to criticism. Certain practical points must be considered, not only from the viewpoint of the service as it was some years ago but even as it is to-day.

Maternity Centres

When these centres started nobody really cared and nobody really knew what was intended. Shops, halls, and odd types of accommodation were rented. They were well staffed and, in many, an additional attraction such as free milk was offered. The profession, like the community, had emerged from the great war, and that part of their professional work which their training and war service had least prepared them for, maternity work, naturally suffered. They could not, and did not, see what was happening. The view that someone should look after the women whom keen and competent doctors in industrial practice were never asked to see, except when complications arose, seemed reasonable, but nobody had hitherto been asked or encouraged to take an interest in these cases.

Then there was a slow awakening. The centres as a hub of maternity service altered in their character. They became attractive buildings ; some were originally so. They offered examination facilities, nursing assistance, and some sort of organization. In some respects they excelled even the maternity hospitals.

Such examination facilities have, as a result of this policy, been placed at the disposal of the doctors at Gosforth, Ashington, Newburn, Wallsend, and Tynemouth. Centres are not essential in every area. In some industrial areas the doctors have their special day set apart for this type of work. Centres have their value ;

the value is greatest in industrial areas, least in better-class areas, and negligible in country areas.

During the period under review, which includes perhaps the last fifteen years, much has happened. Medical schools have extended and intensified their undergraduate and post-graduate training. Recently qualified graduates are forming queues hoping for appointments at maternity hospitals. A British College of Obstetrics and Gynaecology has come into being, and offers a diploma and a membership by examination, and a fellowship by election. The senior Colleges of Medicine and Surgery have given the new College every possible encouragement and support. The professional atmosphere has completely changed towards the subject. An added interest is being taken in it because there are signs that some attempt is being made to remedy the defects of the old system and to make this form of medical service more attractive than it has been in the past.

Some Criticisms

Before venturing on a grave criticism of some existing schemes it is important to realize what has happened as regards the nursing side of the question. To-day, as in the past, it is shockingly inadequate. Some areas have no midwives, whilst in others the sole help is the district nurse, who has probably numerous septic dressings to attend to. In districts where there are midwives it is humanly impossible for a popular midwife to guarantee the necessary nursing, certainly to a case of incipient sepsis. Her livelihood is at stake, especially if she is suspended from her practice. There are numerous nursing associations which are giving excellent service, but even with their assistance the position is still hopelessly behind the times or the needs.

Midwives as a class are, in the writer's opinion, just as disappointed and discouraged as the medical profession in regard to this problem. This is shown by the fact that since the authorities increased the period of training of the pupil midwife, with no previous general nursing training, from six to twelve months, and only permit women with previous general training to sit for the C.M.B. after six months' training in a maternity hospital, the former class of pupil midwife is disappearing, and the majority of the latter have no intention of practising midwifery, but hope merely to obtain a higher qualification or a post as a health visitor. Only a small proportion of the present-day pupil midwives who receive lectures from academic teachers and use up a vast amount of clinical material, to the detriment of the students in training, have any intention of practising as midwives. This is fundamentally wrong.

When the position is viewed by a member of the teaching staff of a medical school and a maternity hospital it is time to rebel at what is going on, and to urge that a halt should be called. The medical schools of this country have an opportunity to help in this matter by moulding the present urge in the right direction, and by acting as foci from which the future efficient service in this work can be developed.

Maternity Service of the Future

Replies to a questionary recently sent to the medical officers of health in the leading medical school centres revealed the following facts, which should make those who teach and examine students and pupil midwives think seriously. In four large medical school centres in this country the students, after qualifying, will find that the ante-natal care of a considerable portion of their clientele is carried out by individuals whose salaries are guaranteed, whose hours of service are limited, and who never have to face the realities of the subject. In some instances they will find that their work is being done by specialists. On the practical side they will find that they still have to work with handywomen, or that the midwife they usually work with simply cannot carry out the intensive nursing they would like a patient to have without endangering her economic position. They may at the same time notice that some of the women who were pupil midwives at the hospital where they received their practical training are now health visitors in attendance at centres.

The maternity service of the future must, as in the past, depend for its success on general practitioner obstetricians. It is a great mistake if they are not encouraged and given every possible facility for taking an active part in the work. The nursing service provided is inadequate, and the present position of doctors as stand-bys for midwives is undignified and not in the best interests of the patients concerned.

What has been accomplished in the Newcastle area can be done in any other medical school centre. It is, however, merely the first stage towards the ultimate ideal. The matter is urgent, foresight is essential, and the national urge for improvement is fortunately still present. Till the profession makes up its mind one can only repeat the question "Whither Midwifery?"

INTERNATIONAL UNION AGAINST TUBERCULOSIS

CONFERENCE IN LISBON, 1936

The tenth Conference of the International Union against Tuberculosis (secretary-general, Professor Fernand Bezançon) will meet in Lisbon from September 7th to 10th, under the chairmanship of Professor Lopo de Carvalho, president-elect of the International Union. The discussion will be limited to three main subjects: biological subject, "Radiological Aspects of the Pulmonary Hilum and their Interpretation," opening report by Professor Lopo de Carvalho (Portugal); clinical subject, "Primary Tuberculous Infection in the Adolescent and the Adult," opening report by Dr. Olaf Scheel (Norway); social subject, "The Open Case of Tuberculosis in Relation to Family and Domestic Associates," opening report by Drs. C. J. Hatfield (United States) and D. A. Powell (Great Britain). Ten speakers selected in advance from a list presented by the forty-four countries belonging to the Union have been designated to open the discussion on each of the questions on the agenda. The British openers are Dr. L. S. T. Burrell and Dr. W. T. Munro.

The Organization Committee of the conference has prepared a very attractive programme of receptions and excursions; the latter will enable members to visit the chief anti-tuberculosis institutions as well as the most picturesque scenery in various parts of Portugal.

Members of the International Union are invited to take part in the conference free of any contribution fee. They may forward their application either through the medium of their Government or their national organization against tuberculosis, or directly to Lisbon, at the following address: Organization Committee of the Tenth Conference of the International Union against Tuberculosis, Assistencia Nacional aos Tuberculosos, Avenida 24 de Julho, Lisbon, Portugal. Names may also be sent to the headquarters of the secretariat of the International Union against Tuberculosis, 66, Boulevard Saint-Michel, Paris 6e. Persons who are not members of the Union and who wish to take part as "Members of the Conference" must forward their application, together with a contribution of 200 escudos (approximately 125 French francs), exclusively through the medium of the National Association for the Prevention of Tuberculosis, Tavistock House North, Tavistock Square, London, W.C.1. Reductions on hotel prices and railway fares will be granted to members of the congress.

MEDICAL CINEMATOGRAPHY

BRITISH EDUCATIONAL FILMS

The International Institute of Educational Cinematography was founded in 1928 as an instrument of the League of Nations for developing the national and international use of films for educational purposes. This body, in collaboration with the Health Organization of the League, is preparing a cine-medical encyclopaedia. The first step has been the study of medical cinematography in each country. In Great Britain the work has been done under the aegis of the British Film Institute by a small medical panel, comprising representatives of the Ministry of Health and the British Medical Association, with specialists in this field such as the late Dr. Canti. A questionary was issued to all universities and medical schools in Great Britain, and a number of films have been examined. The recently published *Catalogue of British Medical Films*[1] represents the results of this inquiry. It is not a guide to quality, but is merely a classified list of the British films that have been brought to the notice of the panel. It is hoped that it will prove useful to those in search of films of medical interest, and thus be a means of extending the use, in this country, of a method of medical education that deserves far more attention than it appears hitherto to have received. Apart from the collection of information respecting existent films, a more important function of the Institute's medical panel will be to give technical advice on the production of new films, and to co-operate in the preparation of the international encyclopaedia.

It is realized that there must be in existence medical films made by individuals or associations, primarily for their own use, which are not included in this present list. The panel is anxious to secure full particulars of such films, and hopes that producing firms will notify the British Film Institute of films which are to be made, or are in course of production, in order that its information may be kept up to date, and that supplements to the catalogue may be issued from time to time.

A Promising Catalogue

The catalogue itself, incomplete though it may be, covers a very wide field. Pre-clinical sciences are dealt with at some length; general medicine has only two films, having as their subject in one case the story, in the other the technique, of blood transfusion, whereas general surgery provides a long list of operations which have been filmed, varying from the pedestrian ligature operation for piles to the Trendelenburg operation of pulmonary embolectomy. In the sphere of hygiene and public health much has been done by the various Ministries and by local authorities in the production of films which are largely for lay propaganda. "Where There's Life There's Soap" and "The Terror that Walks by Night—The Problem of the Bed-bug" sound as attractive as some of the films of the Dental Board, among which latter "The Two Little Pigs" has a singularly Disney-like flavour. In most cases full details are given as to the type, length, and nature of the film, with a note as to its producers and the type of audience for which it is designed, but in one or two instances an intriguing brevity is manifested. "Four female acrobats, 687 feet," sounds as if it deserves rather more than this brief mention!

It is to be hoped that the catalogue will be of value to all who are interested in medical education. It is already clear that the type of research and work which is exemplified here will receive even more attention in the future than at present, both from the point of view of representing an advance in the supplements to medical education and as a means of fostering international medical relations which has not the bar of linguistic difference.

[1] *Catalogue of British Medical Films.* The British Film Institute, 4, Great Russell Street, London, W.C.1. (Pp. 48. 1s.)

MATERNAL MORTALITY AND ABORTION

DEPUTATION FROM THE NATIONAL COUNCIL OF WOMEN

Sir Kingsley Wood, the Minister of Health, received a deputation on February 11th from the National Council of Women of Great Britain. The deputation was introduced by Viscountess Astor, M.P., and there were also present:

Miss Eleanor Rathbone, M.P.; Mrs. Tate, M.P.; Miss Irene Ward, M.P.; Mrs. Hartree (president, National Council of Women); Miss E. H. Kelly, J.P. (chairman, Public Service and Magistrates Sectional Committee); Dr. Stella Churchill; The Lady Ruth Balfour, M.B., B.S. (acting vice-president, National Council of Women); Miss Susan Musson (chairman, Public Health and Child Welfare Sectional Committee); and the Hon. Mrs. Home Peel (hon. treasurer).

The object of the deputation was to submit to the Minister a resolution passed unanimously at the last annual representative council meeting. The resolution recorded that the council had considered recent figures relating to maternal mortality in England and Wales and to the deaths attributable to abortion included in these figures; and urged, first, that the Government should appoint a representative committee to inquire into the incidence of abortion and as to the law and its administration dealing with criminal abortion and attempted abortion, and to consider what measures, if any, are advisable to improve the existing position; and, secondly, that future official returns should show the deaths attributable to abortion separately from the general figures as to maternal mortality.

The Minister of Health's Reply

Sir Kingsley Wood said in his reply that abortion was only one of the factors which contributed to maternal mortality, and the high rate of maternal mortality in certain districts had for some time been the subject of careful and patient investigation by medical officers of the Ministry of Health, working on the spot in close collaboration with the medical officers of the local authorities. He hoped to receive a full report on this investigation before the end of this year; and before considering any further inquiry he would prefer to await that report, which would no doubt deal with the question of abortion in relation to maternal mortality.

The problem was largely a social one, and he was determined to press on with the measures for slum clearance and abatement of overcrowding, on which a good start had already been made. He would also continue to press local authorities to improve their maternity and child welfare services and, particularly, to provide adequate ante-natal care for pregnant women; but, however comprehensive these services might be made, their effect depended upon the extent to which women took advantage of them, and no opportunity should be lost of encouraging women to do so. A Bill to improve the midwifery service was about to be introduced.

After dealing with other points made by the deputation, the Minister thanked them for their attendance and promised that their statements would be examined to see if any action could usefully be taken in advance of the report on the special investigation into maternal mortality to which he had referred.

Reports of Societies

AN INDICTMENT OF ALCOHOL

A lecture in memory of a father and son, Robert and John Turner Rae, who together guided as secretaries the work of the National Temperance League for sixty-eight years, was delivered by Mr. W. McADAM ECCLES on February 14th at the London School of Hygiene and Tropical Medicine, with Sir HENRY BRACKENBURY in the chair.

The lecturer took as his title "Progress and Problems," and spoke first of the change which had taken place in medical and public opinion since the days when alcohol was regarded as the most efficient of stimulants. As the result of scientific investigation it was now realized, at all events by informed persons, that alcohol was actually a narcotic drug, depressing and not stimulating. Nothing could be clearer than the conclusion of a committee of the Medical Research Council in 1924 that "the direct effect of alcohol upon the nervous system is, in all its stages, and upon all parts of the system, to depress or suspend the functions, that it is, in short, from first to last, a narcotic drug." This was now the accepted belief of all the leading physiologists, and ought to be understood by the general public. Mr. McAdam Eccles gave some figures illustrating the remarkable diminution in the amount and cost of alcohol given as medicine in the wards of hospitals which had taken place during the present century. He also claimed that the "strong man" of the advertisement posters was not the drinker, but the total abstainer. That total abstinence led to longevity there was little doubt from life assurance statistics. The proposal form in most companies contained questions as to the habits of the proposers in regard to alcohol, and many companies granted considerable relief in the amount of premium to total-abstaining proposers. This was not because they were interested in social reform, but because they knew a good business proposition when they saw one. The lecturer brought forward some mortality statistics from an office which had two sections—a general section and a temperance section, or, as it ought to be called, and really was, a total abstinence section. In the experience of fifty years the "expected" deaths in the general section numbered 6,545, and the actual deaths 4,784, or 78.54 per cent., and in the "temperance" section the "expected" deaths were 5,633 and the actual deaths 2,959, or 52.53 per cent.

Prevention and Treatment

So much for progress; there remained some problems. One was the prevention of the alcohol habit. The obvious preventive measure was never to start. It was not recognized that, as a rule, persons up to the age of 18 had not taken alcoholic beverages, but then they began to be "treated" by their elders and initiated into social custom, sometimes with deplorable results. The total abstainer could certainly never become a drunkard, but the moderate drinker might easily become an immoderate one. The cure of alcoholism again was a problem in which the physical and psychological side of the question must have full weight. Institutional treatment for the really severe cases was almost essential. Finally the lecturer turned to the problem of alcohol and road accidents. The words of the Road Traffic Act (1930) were "under the influence of drink," which was not the same as being drunk. "Being drunk" was an obvious condition, and no one would suggest that a drunk person was fit to drive a car. But it was only beginning to be recognized that a state far short of drunkenness might lead to fatal accident, and that it was not the amount of alcoholic beverage consumed but the actual percentage of alcohol circulating in the blood which was the index. Mr. McAdam Eccles illustrated by means of a series of stop-films a precise test whereby the percentage of alcohol in the blood stream at any given time could be determined from a "drop" of blood. The minimum percentage which gave evidence of being "under the influence" was 0.088; the minimum percentage found in the person definitely drunk was 0.130; and the highest percentage found in the series of 100 persons tested and consistent with life was 0.430. Of any person whose blood alcohol was over 0.1 per cent. it can be asserted that he was under the influence of drink, no matter whether he had imbibed only two glasses of beer or a whole bottle of brandy, and if such a person was responsible for a traffic accident, whether as driver, passenger, or pedestrian, he should be subject to an appropriate penalty.

TREATMENT OF STERILITY

At the meeting of the Medical Society of London on February 10th, Professor GEORGE E. GASK presiding, the subject for discussion was "The Treatment of Sterility."

Mr. C. S. LANE-ROBERTS, in opening, said that in this country from 10 to 15 per cent. of all marriages failed to produce offspring, and it was said that 20 per cent. of all pregnancies terminated in miscarriage, so that nature was confronted with many obstacles in procreation. A good deal of the prevention of sterility lay in education and in abolishing ignorance of sexual functions. There was now more hope also of correcting absolute sterility in the female by means of plastic operations, and sometimes absolute sterility in the male could be similarly corrected. Most couples should be allowed to go for twelve or eighteen months without investigation unless there was something obviously wrong.

Methods of the Boston Clinic

He described the thoroughgoing methods of investigation undertaken in Meaker's clinic for sterility in Boston, U.S.A., though he was doubtful whether such methods would be quite suited to the English temperament. The nine major headings under which the investigation at this clinic took place, however, were useful, and the speaker devoted a considerable part of his address to discussing them in turn. They were: (1) deficient spermatogenesis; (2) obstruction and occlusion in the male genital tract; (3) hostility of prostato-vesicular secretion; (4) faults of delivery and reception of semen; (5) hostility of endocervical secretions; (6) "uterine blockade," so called; (7) tubal obstruction and occlusion; (8) impassability of ovario-tubal hiatus; and (9) deficient oogenesis. With regard to the first he said that treatment would often succeed along the lines of combating general debility and clearing up chronic infections and intoxications. In some cases of male genital hypoplasia it was claimed that prolan gave promising results. A very large number of cases of sterility fell into the group of faults of delivery and reception of semen, and often where there was inability to perform the sexual act some simple and direct advice would achieve a successful result. So far as faults of reception were concerned, no doubt the sooner an external dyspareunia was dealt with the better. It was usually not necessary or advisable to perform plastic operations on the vagina. The normal alkaline endocervical mucus was a favourable environment to spermatozoa, which were often found to be active in the cervix for hours and sometimes days. On the other hand, acid vaginal moisture was definitely hostile, the spermatozoa losing much of their vitality at once. Investigation showed that the endocervical secretion was invariably moderately alkaline, so that chemical hostility was not of great import, and bacterial hostility was possibly much exaggerated, and bacteria and leucocytes might abound without destroying the spermatozoa. Amputation of the cervix was probably less and less done nowadays. Sometimes a plastic operation on a badly torn cervix might be indicated, but curettage of the endocervix seemed quite useless. A deficiency in pre-coital secretions called for the instruction of ignorant husbands, of whom there were a great number who otherwise appeared intelligent and considerate. With regard to artificial insemination, there were only two indications for it: when the delivery of the semen was imperfect, and when the endocervical secretions were normally hostile to spermatozoa.

After discussing tubal obstruction and occlusion and the cases suitable for salpingostomy, Mr. Lane-Roberts gave an analysis from Meaker's clinic which, on the basis of 100 cases, showed that local female abnormalities accounted for forty-four, female constitutional factors for twenty-two, male constitutional factors also for twenty-two, and local male abnormalities for eleven. Among local female abnormalities hyperplasia of the uterus came first; of constitutional female abnormalities, pituitary dysfunction, ovarian failure, and protein starvation were the first three: of constitutional male abnormalities, pituitary dysfunction, thyroid failure, and chronic infection came first, and of local male abnormalities, varicocele came first. To promote oogenesis small doses of *x* rays were sometimes employed, and had proved of value in cases of sterility associated with amenorrhoea. Finally, after touching on some constitutional factors which had a depressing effect on sterility, such as metabolic disturbances, the speaker addressed himself to endocrine imbalance and treatment. Thyroid might be used to advantage. Even when the basal metabolism was normal or slightly subnormal, desiccated thyroid 1½ to 2 grains daily, had been found to increase cellular activity throughout the body. The oestrogenic substance (ketohydroxyoestrin) was most useful in amenorrhoea. The gonadotropic hormone had found a place in the regularly menstruating woman in stimulating luteinization and in creating an endometrium suitable for nidation. In some cases of primary ovarian failure 10 units of insulin before breakfast and dinner increased body weight and improved genital function. In 150 cases of functional sterility treated along these lines by hormone administration, dilatation and diagnostic curettage, and low-dosage irradiation of ovaries, fifty-three, or 35 per cent., became pregnant (forty-two carrying on to full term and eleven aborting before the sixth month), and of the women who did not become pregnant many were improved clinically. Probably in the vast majority of cases infertility factors would gradually be sifted out by the general and local physical examination of husband and wife, with the call for treatment, Huehner's post-coital examination of the spermatic fluid recovered from the cervical canal, tests for tubal patency, and other special measures such as endometrial examination and the taking of the basal metabolism. The technical side of the investigation of sterility cases had shown great advances recently, and although many unknown depths had yet to be plumbed greater accuracy of methods and consistency of results was to be expected.

Causes of Infertility

Mr. A. C. PALMER expressed the view that in this country in probably not more than 12 per cent. of cases did the cause of infertility reside in the male. In women by far the commonest cause was some degree of genital imperfection or under-development. Giles had given under-development as the cause in about 24 per cent. in a series of 530 cases of sterility. Tubal disease was interesting because it had so many aspects. The speaker drew attention to the condition in which very small fibroids or fibromyomata were found, not only in the uterus but in the isthmus of the tube, also the peculiar condition of adenomyomata which might block the tube.

Mr. GREEN-ARMYTAGE suggested that anovular menstruation was far more often a cause of sterility than was generally appreciated, and he had been disappointed to notice that Mr. Lane-Roberts had not laid stress upon that factor. He thought also that greater emphasis might have been placed on the value of the lipiodogram. On the Continent and in America this was a routine procedure, but it was not so among London gynaecologists. It had distinct diagnostic and therapeutic value. He believed the gas-insufflation test to be almost useless, and open to a number of fallacies. The lipiodogram was much more easy and safe. Gases going through the tube caused spasm, whereas lipiodol went through with much less pressure and did not cause spasm. He noticed that in describing implantation procedure Mr. Lane-Roberts had referred to the use of catgut. It was a mistake to use catgut, which was absorbed; silkworm-gut was to be preferred.

Dr. WILLIAM MOODIE discussed psychological factors in sterility. In his work he constantly came across husbands and wives who, though quite normal on physical examination, had some maladjustment or imbalance which prevented successful coitus, and were to all intents and purposes sterile. These cases had wide ramifications. Anatomically everything was normal, but the mental attitudes of the people somehow inhibited the functioning of the organs. Often it happened that a man or woman who was sterile with one partner was not so with another, with very unfortunate results. When one came to know the mentality of these people, their attitude to sex and to life, it was often possible to see where the maladjustment arose.

Mr. McK. MCCULLAGH spoke of the surprising number of cases in which the tubes were not patent. The drugs he favoured were thyroid and calcium. He had found in one or two cases that on cutting the husband off smoking the wife had afterwards become pregnant. Mr. JOHNSTON ABRAHAM referred to the number of unnecessary gynaecological examinations which were made when the real trouble was the sterility of the male. The man who had had a double epididymitis might theoretically be supposed to be sterile, but sometimes he was not, and the implantation of the vas into the head of the epididymis was followed by fertility. A lot of nonsense was talked about gonorrhoea causing sterility in the male, but it was quite common to find women who had been infected with gonorrhoea and made pregnant at the same time. Recent gonorrhoea did not sterilize a man at all, though it did impede the action of the spermatozoa. Dr. S. H. BELFRAGE considered that the subject of diet had been dismissed too lightly. Vitamin deficiency or imbalance was very common in the diet of the city dweller, and might play a more important part in endocrine disturbance than was suspected. The third or fourth generation of the purely city dweller tended to die out completely, and the explanation might be the customary diet in modern cities. Mr. HOPE CARLTON asked how fertility in the male was affected by an operation for neoplasm of the prostate. He found in America that the majority of people had an idea that the operation done by Young did not cause sterility. One of the reasons for the popularity of perineal prostatectomy was that a man could have children after it.

Mr. LANE-ROBERTS said that if he had not stressed the psychological factor it was not that he did not appreciate its importance. With regard to diet he knew of many cases in which pregnancy had followed a new dietetic regime.

SERUM TREATMENT OF TYPHOID FEVER

A meeting of the Fever Group of the Society of Medical Officers of Health was held on January 31st, with Dr. E. H. R. HARRIES, president of the Group, in the chair. The serum treatment of typhoid fever was discussed.

Dr. FELIX outlined the experimental work which had led to the preparation of the new antityphoid serum. He said that a special antigen had been demonstrated in *B. typhosus* which was associated with its virulence. This antigen, the third known antigenic component of *B. typhosus*, was called the "Vi" (virulence) antigen, and its corresponding antibody was a powerful protective agent. The "O" antigen, though also essential for virulence, appeared to be chiefly responsible for the toxic symptoms, and the "O" antibody was an indicator of the content of endotoxin-neutralizing bodies in the serum. The efficacy of a therapeutic antityphoid serum would therefore depend on the presence in it of effective amounts of each of the two antibodies. The preparation of such sera was by no means simple. Dr. Felix demonstrated a table showing that all the commercial antityphoid sera which he had tested so far were entirely devoid of the "Vi" antibody and very poor in "O" antibody; in the mouse-protection test these sera were

of no protective value whatsoever. Clinical trials with the new antityphoid serum, prepared in the serum department of the Lister Institute at Elstree, were conducted in Palestine and in Egypt, and Dr. Felix gave a brief account of the results obtained. In 1934, in Palestine, forty-three patients were treated with unconcentrated antityphoid serum and a control group of seventeen was treated with equal doses of normal horse serum. The results (*Lancet*, 1935, i, 799) were definitely encouraging, for they pointed to a favourable action on both the toxaemic symptoms of the disease and the pyrexia ; after a few weeks' trial the physicians in charge of the patients had refused to continue the use of the normal serum. In 1935 trials were conducted in Palestine and in Egypt with the object of comparing two differently prepared antityphoid sera—namely, one serum containing "Vi" and "O" antibodies and the other containing only "O" antibodies. The clinicians were not told what was the difference between the two sera. The most important condition laid down for the experiment was that the sera should be tried only on selected severe cases showing well-marked toxic symptoms. In Palestine there were not enough typhoid cases to provide the required number of cases of the most severe type, and for this reason no difference was found in the effects produced by the two sera. The clinicians found that they were equally good. In Cairo Dr. Samy Bey Sabongi, director of the Government Fever Hospital, tried the two sera on two groups of twenty-one cases of the most severe type, and a third group of patients was treated with a commercial serum which was devoid of "Vi" antibody and contained "O" antibodies in low titre. The results clearly indicated that the most beneficial effects were produced by the serum containing both "O" and "Vi" antibodies. The figures available so far were much too small to allow any calculation of a reduction in the death rate or in the duration of the fever period, but the results of these initial trials certainly were encouraging.

Dr. C. J. McSWEENEY reviewed the results to date at Cork Street Hospital, Dublin, where, since September, 1934, an antityphoid serum, supplied by Dr. Felix, had been in routine use. The serum first supplied was unconcentrated, and contained antibodies to both the "O" and "Vi" antigens to a titre of 1 in 40,000 and 1 in 400 respectively. Later, a concentrated serum was available of a titre two and a half times greater than that of the unconcentrated serum. Originally a carefully controlled experiment was planned, but had to be abandoned because of paucity of cases. It was then decided to give Felix's serum to every proven case of *B. typhosus* infection, and to note carefully the effects produced by it on the course of the disease. So far nineteen cases had been treated to a conclusion, and of these fifteen were severe in type. The clinical diagnosis was confirmed in every case by blood culture, agglutination reaction, or both. There were three deaths in this group. One (the first case treated) died following an operation for perforation, three days after receiving a very inadequate single dose of the serum. Another fatal case, showing toxaemic haemorrhages from mucous surfaces and into the skin for five days before serum administration, had also received an inadequate dose of serum because of a shortage of supplies, and the third fatality was a toxic patient with marked mental symptoms who developed a hypostatic pneumonia a week after serum administration. The group of sixteen patients who recovered included some remarkable cases. All except two of the patients were adults, and one of the two children was a case of primary typhoid meningitis, the *B. typhosus* having been cultivated from the cerebrospinal fluid. This child made a dramatic recovery after intrathecal and intramuscular injections of Felix's serum. A severe case of typhosus infection with haemorrhages from mucous membranes and into the skin ceased to cause anxiety a few days after serum administration, and made an uneventful recovery. The other patients in this group also showed a striking amelioration in symptoms shortly after the third serum injection had been given, and the disease terminated by a short lysis. Two adult patients, who showed premature defervescence early in their disease following serum therapy, developed relapses, which were again aborted speedily by repetition of the serum dosage. Serum reactions were frequent, and occasionally interrupted the lysis which seemed to set in after serum therapy, but otherwise no untoward effects of any kind followed the injections. The only complication observed in the sixteen patients who recovered was a suppurative cervical adenitis in one case. None of the cases had received T.A.B. injections, nor had any of them had a previous enteric infection. There had been no selection of cases, and no case receiving serum had been omitted from this survey. Summarizing the Dublin experiences, Dr. McSweeney said that in ten of the nineteen cases the charts (which were exhibited) showed unequivocal evidence that the duration of pyrexia had been shortened. The effect of this serum on toxaemia was, however, more striking and more constant than the effect on pyrexia. In twelve of the eighteen patients who showed varying degrees of toxaemia at the time when serum was administered all toxaemic symptoms had vanished forty-eight hours after the last dose had been given. In four others the toxaemia was definitely lessened, and had disappeared within a week of the serum therapy. The effect on toxaemia in two patients was doubtful or transient. The remaining patient was not toxaemic at any time. Whilst admitting that this record of experiences with Felix's serum did not permit of a statistical evaluation of its merits, Dr. McSweeney claimed that the results obtained in his series of cases justified its routine employment in typhoid fever, more especially if toxaemic features were in evidence. Although the number of observations were small, one could not do other than conclude that Felix's serum was a new and potent weapon in combating the toxaemic side of the enteric syndrome.

Dr. E. W. GOODALL pointed out that typhoid fever was a disease which varied much from time to time, even in the same place, in its severity and the frequency of its complications. The researches of Dr. Felix seemed to throw light on the reasons for this variability. In none of the acute fevers had more claims been made on behalf of various treatments than in this one. The bath treatment, for instance, had been most strongly advocated, and, in his opinion, not without good reason. The serum treatment dated from 1906, when Chantemesse, with the serum of a horse immunized with an exotoxin stated to have been prepared by him, claimed to have reduced the fatality from 17 to about 4 per cent. The dose was only a few drops. In 1908 Dr. Macfadyen and Professor Hewlett produced a serum by injecting horses with an endotoxin obtained by grinding up typhoid bacilli at the temperature of liquid air. That serum was tried at the Eastern and other hospitals, and appeared to be remarkably efficacious in some of the cases. During the war he had had an opportunity of treating with vaccines a few cases both of typhoid and of paratyphoid A and B among French soldiers at Dunkirk, and in some cases with remarkable results. In a few of both the serum- and vaccine-treated cases the disease ended critically in a few hours or two or three days, a very rare event in typhoid fever treated by other methods or left to itself. He exhibited charts of these cases. Dr. Felix had allowed him to examine the reports of the cases treated at Cairo and Jaffa, and Dr. Goodall had come to the conclusion that in some of the cases (twenty-five out of sixty-six) the serum had been beneficial ; but he doubted whether the evidence was strong enough to conclude that the serum with the "Vi" antibody was superior to that with only the "O" antibody. Even the Vienna serum, which was said to be very much weaker in antibodies, appeared to have been of some benefit. Some of Dr. McSweeney's cases also showed decided evidence of benefit. In the cases of both Dr. Felix and Dr. McSweeney there were a considerable number, however, in which the serum had been of no effect, just as had occurred in several of Dr. Goodall's cases. A very important question was: How, in those cases where it seemed to be beneficial, had the serum acted? Results similar to those reported had been recorded by other observers following the injection of various proteins, not only in the enteric fever but in

undulant fever. The suggestion was that the reactions were not specific, but of the nature of protein shock. The question could be settled only by further extensive trials, and it was especially desirable that there should be comparable series of control cases.

Dr. D. S. SUTHERLAND (Manchester) referred to the continued occurrence and admission to hospital of sporadic cases of the enteric group. During the past year he had had under his care at Monsall Hospital twenty-eight verified cases, and there had been two deaths. The case records demonstrated led him to believe that the Felix antityphoid serum would have a definite anti-toxic value analogous to that of anti-scarlet-fever serum, and an important place in the treatment of cases of typhoid fever. Dr. H. S. BANKS considered that a presumptive case had been made out for further trials of the serum. The best results appeared to have been obtained where the serum was administered early, before the local lesion had progressed far. He thought that the intravenous route would be more efficient. Trial alone could show whether the serum in its present form was suitable for intravenous injection; failing that, the next best route would be the intraperitoneal. He considered that there was little risk involved in intraperitoneal injection, even in a disease with intestinal lesions like typhoid fever.

Dr. A. JOE mentioned that during the eight years ending June, 1934, 349 cases notified as enteric fever had been admitted to the North-Western Hospital, but in 139 cases the diagnosis had not been confirmed. The infecting organism was *B. paratyphosus* B in 124 cases, *B. paratyphosus* C in three, and unspecified in five, leaving seventy-eight cases of true typhoid fever. During that period there were nine deaths from enteric fever, and none occurred in the paratyphoid cases, so that the case fatality rate for *B. typhosus* infections worked out at 11.5 per cent. Thus, while quantitatively the problem was not great, any infectious disease with a case fatality of that order was well worth the attention of the fever clinician. He had had no opportunity of using the serum himself, but through the courtesy of Dr. Felix he had had an opportunity of examining the temperature charts and clinical data of the Palestinian and Egyptian cases mentioned by that speaker. In the Egyptian cases it appeared that better results were obtained with a serum containing both "O" and "Vi" antibodies than with a serum containing only "O" antibodies, and, again, the results seemed better with the serum containing "O" antibodies in high titre than with a serum containing "O" antibodies in low titre. In the Palestine series he could not discern any superiority of the serum containing both antibodies over that containing only "O" antibodies. In assessing the results of serum treatment a non-specific effect required to be kept in mind, and in the series of cases referred to, since there were no controls with normal horse serum, it was impossible to say how far this factor operated. It seemed to him, however, that on the whole the results obtained from Dr. Felix's serum were more frequent than might be expected from a purely non-specific effect, which was usually held to be very inconstant. He thought the results encouraging, and that Drs. Felix and McSweeney had made out a good case for an extensive clinical trial of the serum, which was now obtainable commercially.

Dr. FELIX, replying, said that he could not accept the objection raised by Dr. Goodall that the conclusions drawn from experiments with mice or rabbits did not apply to the disease in man. Though the clinical symptoms were different, their causes were the same. Bacteriaemia was due to the invasive power of the infecting micro-organism, and there was no reason to assume that the "Vi" antibody would not exercise its powerful invasion-suppressing function in man as well as in the mouse. The toxic symptoms in man were due to the same endotoxin of the typhoid bacillus, the action of which was clearly demonstrable in the mouse and was neutralized by a potent "O" immune serum. He thought it quite possible that Chantemesse's and Macfadyen's sera had been of therapeutic value, because they were prepared by methods which did not destroy the labile "Vi" antigen. These methods, however, had been abandoned long ago because of lack of knowledge of the mechanism of immunity to infection with the typhoid bacillus. Dr. MCSWEENEY added that in an uncontrolled experiment of small dimensions it was impossible to prove that the effects produced were specific, but, whatever the origin, they were of very frequent occurrence and beneficial in nature. Dr. Joe had said that a case had been made out for an extensive use of the serum, so that knowledge of its mode of action might be increased; if that were so, the object of his communication had been achieved. Delay in administering serum occurred in a few cases because the results of blood culture were not immediately available. Intravenous therapy was not tried because the risks of that mode of administering serum might weight the scales against a remedy the merits of which he was trying to assess. The intraperitoneal route seemed a preferable alternative.

THROMBOSIS OF A CEREBELLAR ARTERY

At the annual meeting of the Devon and Exeter Medico-Chirurgical Society, with the newly elected chairman, Dr. A. HIPWELL, in the chair, Dr. C. CAMERON read the clinical notes on a case of thrombosis of the posterior inferior cerebellar artery, where death had taken place within twenty-four hours of the onset of symptoms. The diagnosis of the lesion and the exciting cause of the thrombosis as revealed subsequently at the post-mortem examination had proved extremely puzzling during the brief illness. The patient, a married woman aged 37, with one child aged 13, had had two attacks of appendicitis, for which no operation had been undertaken. She had formerly resided in India, had contracted malaria, and was not yet considered to be entirely free from attacks after some three years' sojourn in this country. (The information on the malaria, however, was not forthcoming until the next day.) Symptoms somewhat similar to those that were associated with the fatal illness had occurred about twelve months previously, with apparent complete recovery. On that occasion she had seen a motor accident in which she was not otherwise concerned. When summoned urgently to her on the evening of January 13th Dr. Cameron learned that she had felt, and seemed to others to be, in normal health until during some round games played after tea, when she had suddenly complained of feeling queer, flexed her head on to her knees, and had been violently sick. She was also very pale and giddy. Dr. Cameron found her fully dressed and lying on her right side on the couch. Her general condition was good; she was well developed, although somewhat adipose. She was in a clammy sweat, with a weak, slow pulse. Both eyes were deviated upwards and to the right. Her speech was coherent, but all movements were staggering, and lacked co-ordination. She vomited again during the effort of getting her up to bed. The following observations were then made. The tongue was clean, the temperature 97.4°, and the pulse rate 64 and of poor volume. The teeth were in good order. The systolic blood pressure was 110. No abnormality could be discovered in the heart or lungs; the abdomen was normal. There was photophobia, with lateral deviation of the eyes, but no apparent ocular paresis; the pupils were equal and normal in repose, and responded both to light and to accommodation. The patellar reflexes were equal but slightly exaggerated; the abdominal reflex was present; the ankle-jerk response was negative on both sides. Both plantar reflexes gave flexor responses, but these were difficult to obtain. Treatment was expectant, and directed mainly towards overcoming the collapse. Later in the evening it was found that the bladder and rectum had acted under control, but unfortunately no sample of urine had been retained for examination. Seen with a colleague (Dr. G. M. Willoughby) no cause of the condition could be found by a routine aural examination, and as possibilities in the diagnosis the following were discussed together: (*a*) haemorrhage; (*b*) rupture of an abscess or cyst; (*c*) thrombosis of one of the cerebral vessels, but except for the sudden onset, there was no special indication why

this should have happened. Since skilled nursing and observation were needed she was removed to the Exmouth Cottage Hospital that night. At 10 a.m. on January 14th it was found that she had had a good night ; she was coherent, felt quite fit, and was anxious to return home. It was noted that, although deviation of the eyes was not so marked, there was now a definite nystagmus to the left ; the speech was a little indistinct, and the left plantar response was extensor. No urine had been passed during the night, but a catheter specimen then obtained showed no abnormality. At this examination a relative volunteered the information about malarial attacks, and cerebral malaria was now added to the list of possibilities in the diagnosis which were to be discussed at a consultation arranged for 2 p.m. with Dr. A. Simey. On arrival at the hospital at this time it was found that she had suddenly lost consciousness ; a few minutes after 2 p.m. she was *in extremis*, and died some six minutes later. The sister in charge stated that she had been quite coherent and sensible within a few minutes of this sudden collapse.

Dr. W. A. ROBB, who made the post-mortem examination, stated that the presence of a malarial factor had been further supported by the spleen being one and a half time the normal size. There was softening in the left lobe of the cerebellum, and thrombosis of the posterior inferior cerebellar artery. He had removed a portion of the brain, including the circle of Willis, and had examined the blood taken immediately from the thrombosed vessel ; both preparations were demonstrated to the meeting. The films showed a leucocytosis with a preponderance of lymphocytes. Unfortunately no note was made as to the condition of the lymphatic glands, but the enlarged spleen and the blood findings clearly established that the woman had been suffering from lymphatic leukaemia. Here, then, was a case of lymphatic leukaemia in which thrombosis of the posterior inferior cerebellar artery had occurred, causing in turn a unilateral cerebellar lesion and an early termination through bulbar paralysis.

Congenital Haematoporphyrinuria

Dr. F. A. ROPER read notes of a case of congenital haematoporphyrinuria in a woman aged 29, who was present at the meeting. Attention seemed to have been first drawn to the condition when she was 5 and had just had an attack of measles. Blistering of the face had tended to recur ever since this date, especially in summer, and the urine had remained red in colour. Exposure to sunlight had invariably provoked a severe cutaneous reaction, and the skin over the ankles had been previously affected when not protected by thick stockings. Uroporphyrin had been obtained from the urine, and coproporphyrin from the stools, but porphyrin had not been detected in the blood serum. Routine examination of the blood revealed an anaemia of the microcytic type, the platelet counts being within normal limits. The serum gave a positive van den Bergh reaction, and the blood Wassermann reaction was negative. Dr. Roper drew attention to the facial hirsuties, the scarring and pigmentation of the exposed skin areas, the stunting of the fingers, the brown teeth, corneal ulceration, and the yellow-brown discoloration of the skin. The spleen was just palpable, but there was no appreciable enlargement of the liver. The most accepted explanation of the condition was excessive haemolysis, as an alternative to the usual bilirubin derivations.

England and Wales

Central Midwives Board

The report on the work of the Central Midwives Board for the year ended March 31st, 1935, which was published last week (H.M. Stationery Office, price 3d.) contains statistics of the total number of women on the Midwives Roll (58,964) and of those actually in practice. The analysis shows that less than 30 per cent. of the total number of qualified midwives are actually engaged in the practice of their profession. A report on the examinations held during the year, both for pupil midwives and for midwives who wish to train pupils, is included. During the year a revision of certain of the rules of the Central Midwives Board has taken place, including those regulating the proceedings of the Board on complaints relating to the conduct of midwives.

Sir Comyns Berkeley, Mr. Victor Bonney, and Lady Richmond have been reappointed representatives on the Board respectively by the Royal College of Physicians, the Royal College of Surgeons, and the Queen's Institute of District Nursing for the ensuing year. At the February meeting of the Board it was agreed to inform the county medical officer of health for Durham, in reply to his letter, that if a midwife or nurse-midwife is attending, or liable to be called to attend, maternity cases and is also attending septic wounds or any other condition which may raise suspicion of infection, she is bound in accordance with Rule E9 (A) (i) to comply with all the requirements of that rule. In reply to a letter from a registered medical practitioner, the Board agreed to inform him that it regarded Rule E 28 as making it perfectly clear that a midwife could not lay out the dead body of a patient upon whom she had not been in attendance. The Board has agreed that, in accordance with a recent resolution, an application for an increase in the number of pupil midwives to be trained at the Norwich Maternity Home cannot receive consideration until the new training and examination rules, which are at present under revision, are approved. When these new rules have become operative the Board will be prepared to consider the matter in question if the medical officer will submit a scheme of training which it is proposed to put into operation in Norwich. A letter was read from the medical officer of health for Nottingham setting out details of a proposed new scheme for providing district training for the pupil midwives of the City Hospital, Nottingham. It was agreed to reply that before the matter could be considered it would be necessary for the M.O.H. to furnish the Board with particulars of the working of the new scheme at the end of a year from its commencement. Also that before the training as outlined can be approved he must submit applications for approval as teacher from suitable midwives. Approval as lecturer was granted to Dr. William Joseph Clancy, Sheffield City General Hospital.

Finance of L.C.C. Hospitals

Volume iv (Part II) of the annual report of the London County Council for 1934 deals with certain financial aspects of the maintenance by the Council of its hospitals for the sick during the year ended March 31st, 1935. Its object is to set out, for the information of all who are interested in problems of hospital administration, comprehensive data, expressed in terms of cost per in-patient per week, for each of the seventy-six hospitals for the sick maintained by the Council. Reference is made to some of the more important factors which affect the level of costs per head as well as to changes in such matters as the keeping of inventory records, regrading of staff, obsolete and redundant stocks, outdoor dispensary and district medical services. The cost tables presented in the report are more detailed in form than those published in respect of the voluntary hospitals in the annual reports of the King Edward's Hospital Fund. The series is based upon the assembly of hospitals into groups, according to the type of patient treated, and a description of the activities at each hospital is annexed. Particulars are given for each group of the number of beds available and the average daily number of patients treated, with a detailed analysis of the cost per patient per week. At the end of each table figures are given showing the "mean" costs for the hospitals in each group, as well as the "average" costs for all patients. Not only are

details of the "local" costs for each hospital shown, but also the central and overhead charges, thus arriving at a total inclusive cost per occupied bed per week for each hospital. The report (No. 3163) is obtainable through any bookseller or from P. S. King and Son Ltd., 14, Great Smith Street, Westminster, S.W.1.

Health of the City of London

The continued decline in the resident population of the City of London is mentioned in the annual report for 1934 of its medical officer of health, Dr. W. M. Willoughby. The estimated figure for 1934 was 9,660, which compares with 10,808 in 1931, 13,709 in 1921, 19,657 in 1911, and 26,923 in 1901. The birth rate was 6.8 per 1,000, compared with the metropolitan birth rate of 13.2 for the same year. The death rate was 10.5 per cent., as against 11.9 for the whole of the metropolis and 10.9 for the City in 1933. The death rate for children under 1 year was 121 per 1,000 births, the rate for the whole of London being 67. At the beginning of 1934 an additional weekly session was inaugurated at the City of London Welfare Centre at St. Bartholomew's Hospital; the number of families attending increased and also the total number of attendances. The close relation of this centre to the children's department of the hospital has rendered it possible for prompt institutional treatment to be provided for those infants coming to the centre who require it. Between the years 1900 and 1934 inclusive only sixteen maternal deaths occurred among City residents. Of the 188 cases of infectious disease notified during the year under review fifty-two were of chicken-pox, forty-two of scarlet fever, twenty-two of diphtheria, and nine of erysipelas. Measles and German measles are not notifiable, but the medical officer of health was informed of fifty-eight cases of the former by medical practitioners. Four cases of small-pox occurred during the year in persons not resident but employed in the City. Only two applications for diphtheria antitoxin were received, and none for anti-influenza vaccine.

Housing in Kent

During 1934 the number of houses inspected in Kent totalled 39,451, of which 24,378 were in urban areas and 15,073 in rural areas. This is the highest number inspected for several years. The houses found to be unfit for human habitation were fewer than the exceptionally high figure recorded in 1933, but much more than in other recent years. In his annual report for 1934 Dr. Alfred Greenwood, county medical officer of health, attributes this increase to intensified work under the Act of 1930 and to the fore-planning which has been recently encouraged. More houses were demolished, particularly in rural areas, but the number of houses in which defects were remedied was below that in many years. The county figure for the erection of new houses reached the creditable total of 16,446, the highest for some time past. The urban areas showed an increase in this respect, but there was a considerable decrease in rural areas. The approximate house shortage has decreased, but it is estimated that at least 3,700 houses are still needed in the county. Rural district councils in Kent now own 4,231 houses; of 2,091 new houses erected in rural areas in 1934, 230 were built by local authorities, and the remainder by private enterprise. The special difficulties in Chatham are discussed by Dr. Greenwood. Repairing would not provide a permanent remedy for many of the dwellings in the older parts of the town. It would be unfair to call upon the owners for any large outlay on this class of property without some assurance of stability, and it was obvious that the only satisfactory method of dealing with old, worn-out, and insanitary property was to clear it away and thus mitigate the social evils. Dr. Greenwood remarks that by providing adequate dwellings at payable rentals, and enabling the occupants to live healthier lives, the local authority is performing only part of its task. Many of the tenants of new houses require guidance in availing themselves of the advantages given them. Much may be hoped from the rising generation, which will not tolerate a continuance of dirty and untidy habits. Elsewhere in the county steps are being taken to remedy the housing shortage, but there is still a demand in some places for houses which can be occupied by the poorer classes at an economic rent.

Scotland

Glasgow Royal Infirmary

At the annual meeting of Glasgow Royal Infirmary held on February 10th, Sir James Macfarlane, chairman of managers, in submitting the report, said that he, with other representatives of the voluntary hospitals in Scotland, had recently given evidence before the Departmental Committee on Health Services in Scotland. Their evidence had been to the effect that no individual institution could live in isolation, and that voluntary hospitals should work with other bodies responsible for the care of the sick and for safeguarding health; at the same time there was no reason why the peculiar virtues of the voluntary system should not be retained. The value of the work achieved in the past could not be over-estimated, but the time had come when the importance of that work should be recognized by the State in ways that would not interfere with the voluntary system. He believed that the Departmental Committee was not only sympathetic but very anxious to find ways and means of fostering the voluntary hospital movement as part of the health services of Scotland, and that the voluntary system had a long and vigorous future before it. The Royal Infirmary of Glasgow was one of more than 1,000 voluntary hospitals in Great Britain, and it had had a notable record for the past year. The number of cases treated to a conclusion had been 17,380, an increase of 861 over the figure for the previous year, and the daily average of in-patients was 845, with an average residence of seventeen days. In the out-patient department the total attendances of 400,478 were less by about 11,000 than last year. The report shows that the ordinary expenditure for the year was £112,574, representing a deficit of £26,212 over ordinary revenue. It is noteworthy that £26,394 received as subscriptions for employees in the area was almost £1,000 more than in the previous twelve months. The extraordinary income had been £61,982, so that after various capital payments had been made and the deficit on ordinary income covered, £28,097 was carried over to capital account.

Crichton Royal Institution, Dumfries

The ninety-sixth annual report of this institution for mental patients, covering the year 1935, contains statistical tables of admissions and recoveries for various periods (1908–27, 1928–31, and 1932–5), from which some tentative conclusions deserving of attention are drawn by Dr. C. C. Easterbrook, the physician-superintendent. Briefly, the recovery rate has shown a distinct rise during the last four years, 1932–5, recovery being interpreted as implying full restoration of the individual to normal health with ability to resume his or her former life and occupation or a modification of these if considered advisable. Dr. Easterbrook points out that undue significance must not be attached to the figures for any single year, and that his deductions must therefore be viewed with caution. His statistics show that the recovery rate of voluntary patients is higher than that of certified, but that the excess in favour of the former over the latter exhibited a reduction in the later years of the whole period investigated, this being explained by the increasing tendency nowadays for patients to be treated on a voluntary footing. Dr. Easterbrook remarks that there is no obvious change in medical treatment to account for the recent improvement in the recovery rate, and he raises the question whether it is to be regarded as a temporary variation or whether there has been a definite change in the environment. Towards the end of 1931 the artesian water supply of the institution was considerably increased

by the boring of another well, and the water of the new well was found to be two and a half times as radio-active as that of the old one, that from the new well having 150 units of temporary radio-activity. It is known that the radon in such water is diminished to one-half in 3.85 days, but the artesian water at this institution is wholly consumed during the first and second days after it has been drawn from the two bores, so that it still retains its full radio-activity when consumed, and may therefore be functioning as an agent of radiotherapy. This form of treatment has not hitherto been employed on a considerable scale for mental diseases, probably because the existence of a local lesion amenable to the action of radium derivatives has not been postulated. Mental conditions, Dr. Easterbrook adds, are affections of the whole body, mind, and personality, necessitating treatment of the entire organism. The most frequent bodily symptoms in newly admitted mental patients are general debility and exhaustion, malnutrition, and disordered metabolism, which have usually been the premonitory features of the mental attack. The characteristic process of the metabolism is oxidation, and the basal metabolic rate is lowered in melancholia and dementia, with the accumulation of toxic products. Since the curative results of certain radio-active springs in gout and allied affections of the fibrous tissues, muscles, and joints are attributable in part to radio-activity operating on the general metabolism, it may be that such springs would be found to be of great value in the treatment of mental disorders also, and that it would be well to utilize these waters more purposively for drinking and baths.

Convalescent Home for Edinburgh Sick Children

The Royal Edinburgh Hospital for Sick Children has for long possessed a convalescent home for older children at Gullane, but recently, in order to make provision for very young children, Lord Forteviot presented and endowed a house and grounds at No. 16, Hope Terrace, Edinburgh, to be used as an annexe to the hospital for convalescents under the age of 2 years. The home has been given in memory of the late Lord Forteviot, and is in charge of a sister and staff nurse with two day and two night nurses from the Sick Children's Hospital.

Scottish Pharmacy

A complimentary dinner to Mr. John Rutherford Hill, who had completed fifty years as resident secretary in Scotland of the Pharmaceutical Society of Great Britain, was held in Edinburgh on February 12th, when Mr. Hill was also presented with an honorarium. Dr. J. F. Tocher, in making the presentation, said that the duties of pharmacists had greatly increased during the past fifty years, and their work had been made much more responsible by the Pharmacy Acts of 1908 and 1933, the four Dangerous Drugs Acts, and the elaborate Regulations and Poison Rules of 1935. Scotland was well supplied with pharmacists, of whom there were five to every 10,000 of the population as against only two for 10,000 in England. The publications of the Council of the Pharmaceutical Society, the *British Pharmaceutical Codex*, and the *Extra Pharmacopoeia* were summaries of discoveries of science in recent years, and were indispensable to the pharmacist, the analyst, and the medical practitioner, and in the preparation of these Mr. Hill had done good service. Mr. Hill had been agitating for some forty years for more complete training of pharmacists in Scotland, and within a year or two a complete pharmaceutical curriculum would be established in the Heriot Watt College, Edinburgh.

The authorities of the Scarborough Hospital, who will have to meet additional maintenance costs when the new hospital with its 140 beds is opened, have decided to launch a contributory scheme under the British Hospitals Contributory Scheme Association. It is hoped to open the new building before the end of this year. Under the Scarborough scheme the weekly contribution will be 3d. for adults and 2d. for persons under 21 and over 60 years of age.

CORRESPONDENCE

The number of letters received for publication is so large that we must ask correspondents to make their points briefly and to regard 600 words as the upper limit of length.

The Grading of Milk

SIR,—In a leading article in your issue of February 1st (p. 218) the opinion is expressed that the official designation "Grade A" applied to milk obtained from cows which have not been subjected to the tuberculin test has "misled the whole of the public and most of the profession for the last thirteen years"; and the writer adds the hope that "some change may be made." A Draft Order recently issued by the Ministry of Health does indeed propose to make a "change," but this unfortunately is a change of form and not a change of substance. Milk hitherto known as "Grade A" will in future receive the label "Accredited," and as the general interpretation of this term implies "credit, countenance, authority, and honour" the situation is essentially unaltered. The name is new but not the quality, and a label which will be read as a guarantee of all the virtues will continue to be applied to milk which cannot be accepted as "safe" in the sense that its use is free from the risk of tuberculosis and other communicable diseases. The misleading tradition established by "Grade A" will be well maintained by its successor "Accredited."

The other designations in the new Draft Order may be open to criticism, but more important is it to recall that the official Cattle Diseases Committee (chairman, Sir Frederick Gowland Hopkins) recommended in 1934 a series of designations which have at least this value, that the plain man knows exactly what they mean. They are "Certified" (the addition of T.T. may be suggested as an improvement), "Pasteurized," "Sterilized," and "Milk (uncertified)." This recommendation has been ignored, and considerable ingenuity has been active in the proposal of new names, which, like "Grade A," suggests a level of safety that they do not actually possess. The one now advanced is "Accredited," and even skill in the art of interpretation may hesitate to define the difference (if any) between the discarded name and the new proposal.

Not unrelated to this question of terms and definitions is one of the regulations prescribed by the Ministry of Agriculture for the protection of "attested herds"—that is, herds guaranteed to be free from tuberculosis. Milk may be supplied for the feeding of such herds, but not "Grade A," and not "Accredited." No, attested herds may receive only milk from tuberculin-tested cows or milk that has been pasteurized or sterilized. Is not the same measure of protection due to men and women and children?—I am, etc.,

London, W.1, Feb. 17th. C. O. HAWTHORNE.

Surgical Grafts for Coronary Disease

SIR,—The attention drawn in your current issue (p. 317) to the possibilities of relieving myocardial ischaemia by surgical means is timely.

Such cases as survive any considerable degree of coronary infarction do so only by virtue of the establishment of an adequate collateral circulation between the myocardium and the parietes—a relatively uncommon sequence. Beck in America and O'Shaughnessy in this country, working independently, have each introduced operations whereby the myocardium may be revascularized by grafts, the former employing pectoral muscle and the

latter omentum. The application of a pectoral graft to the heart is a somewhat arduous operation involving resection of the interjacent costal cartilage. On the other hand, the pericardium having been opened through the left pleural cavity, a portion of the omentum may be brought through the diaphragm and applied to the heart with comparative ease. Not only is the omental graft more easily applied than one from the pectoral muscle, but its functional superiority appears to be greater, and the extent to which its vessels subsequently anastomose with those in the coronary system is so striking that, in the experimental animal, dye injected into the coeliac axis rapidly makes its way into the aorta through the coronary arteries. Pectoral muscle grafts apparently do not lead to any gross anastomosis unless there is associated an appreciable degree of coronary occlusion.

A series of cases of coronary occlusion (thrombotic) investigated by Beck and Tichy demonstrate how unjustified is the complacent view of the results of passive treatment taken by your annotator, who appears to doubt the necessity for such active intervention. Its utility is not in dispute. Only fourteen out of ninety-four patients died as the direct result of the first major coronary occlusion. Of the eighty survivors, in thirty-seven operative intervention would have been contraindicated by reason of other complications. All but seven of the remaining forty-three patients, in whom there was no such contraindication, died of a subsequent attack. Landau's experience at the Vienna Heart Hospital is that 78 per cent. of these cases exhibit definite premonitory symptoms for varying, but often considerable, periods beforehand.

Relief of established myocardial ischaemia being now, I believe, both a practical and a justifiable surgical procedure, the necessity of considering these operations from the viewpoint of prophylaxis arises. Surgery has made another of her great contributions to the alleviation of disease, and whilst discretion in its employment is desirable, undue delay in the recognition of its possibilities would be regrettable.—I am, etc.,

Newcastle-upon-Tyne, Feb. 17th. GEORGE A. MASON.

Needles in Feet

SIR,—Mr. E. I. Lloyd's article on "Needles in Feet" moves me to describe a method for their removal which I have used for some years and which I have found universally successful. The method is particularly applicable to those cases seen within a short time of the embedment of the needle, but I have found it entirely successful in a case in which the needle has been run into the sole of the foot four weeks previously. The method depends upon the fact that, in its course through the skin and subcutaneous tissues, the needle ruptures capillaries, thus leaving a contused, haemorrhagic track in its wake.

A general anaesthetic is given, the limb is completely exsanguinated by the tight application of an Esmarch's elastic bandage, above which a tourniquet is placed. In many cases the site of entry of the needle may be discovered on careful search, and the incision is made here; otherwise the situation of the incision will be determined from the radiograph. As soon as the subcutaneous tissue is exposed it is seen to be quite white and glistening, since all the blood has been squeezed out. In the midst of this, however, the track of the needle will be easily identified, for it shows up very clearly as a dark red area from the effused blood. It is the simplest possible matter to follow this track inwards until the needle is reached. I have never known this method to fail, and the removal of the most deeply embedded needle is a matter of only a few seconds, and is accomplished with a minimum of trauma. It will be appreciated that the method is only applicable to those cases in which one is having "the first bite at the cherry."

As Mr. Lloyd has pointed out, failure to find a buried needle may be very damaging to a surgeon's reputation, for the lay public is unable to appreciate that hunting for a needle in the sole of the foot may offer quite as small prospect of success as attempting to find the same object in a haystack.—I am, etc.,

H. A. H. HARRIS,
Surgeon and Orthopaedic Surgeon, Chelmsford and Essex Hospital; Consulting Surgeon, Ongar War Memorial Hospital.

Chelmsford, Feb. 16th.

SIR,—I was interested to read a short article on this subject in your issue of February 15th (p. 310). Those of us who as house-surgeons have had to deal with such cases must have been impressed with the difficulty encountered in trying to locate and remove fragments of needles embedded in the firm tissues of the hands and feet; and I would venture to bring to the notice of all who are faced with this problem a simple method, which we found of great value during the war when small fragments of shell, etc., had to be removed, and which as a casualty officer I found equally valuable in the case of needle fragments, reducing the time of operation from an hour or more to a few minutes and avoiding the necessity for a general anaesthetic.

I refer to the employment of what is known as the telephone probe. The apparatus is extremely simple, and consists of a pair of ordinary wireless head-phones, a piece of old battery carbon about six inches long and one inch wide, with terminal attached, and a short length of rubber-covered insulated flex, with a spring clip attached to one end. One wire of the telephone flex is attached to the battery carbon, which is wrapped in a piece of lint soaked in warm saline and placed in firm contact with any part of the patient's skin (the simplest way is to place it under the patient's bare buttocks as he lies on the table), while the other telephone wire is connected to the length of insulated wire by a small binding screw, leaving the spring clip free to be attached to a straight surgical needle, scalpel, or forceps as required. The flex and clip can be sterilized before use.

The procedure is simple. The fragment is approximately localized beforehand by accurate antero-posterior and lateral skiagrams, marks being placed on the skin in two planes if possible. No notice should be taken of the wound of entry of the foreign body, as the fragment may lie some way from it and the site of the wound is often most misleading. The head-phones are placed over the surgeon's ears, and a small incision is made over the expected site of the foreign body. The spring clip is then attached to a probing needle and the wound gently probed. Immediately this probe touches a metallic fragment a distinct click is heard on the head-phones, the probe can be left *in situ*, and the foreign body cut down on and removed. If it is lying deeply the clip can be attached to the scalpel, or a pair of fine forceps, in turn, and directly it reaches the metal a click will again be heard, and thus the surgeon is always in full control of the situation. It should be pointed out that the probing instrument should not be allowed to touch any other metal instrument which is in contact with the tissue juices.

The principle of the telephone probe, which requires no separate battery, depends, of course, upon the fact that the wet carbon, the patient's body, and the probe act as an electric cell, the fluids of the patient's body being the electrolyte. When the probe touches a foreign body this is equivalent to a sudden increase in the capacity of one of the electrodes, and a current flows through the head-phones to produce an audible click. I think that every casualty department should be provided with this instrument, and successive students instructed in its use, for it saves the patient from a long and trying ordeal and avoids the otherwise inevitable exasperation of the surgeon and the onlookers.—I am, etc.,

Bristol, Feb. 15th. GILBERT B. BUSH.

Atropine Poisoning

SIR,—In the *Journal* of February 15th (p. 311) there appears an interesting report, by Dr. Clara M. Scally, of a case of poisoning after one instillation of atropine drops. It is remarkable that other occurrences of a similar nature are not more frequently met with.

In all my experience, dating from 1894, at the Manchester Eye Hospital, one of the two largest special hospitals in the United Kingdom, I can only recollect one out-patient, and that a girl of about 8 years of age, who showed general toxic symptoms. She became dazed and presented irregular sinuous movements of the hands and fingers, but soon recovered without treatment. The instillations were for purposes of refraction. It has always appeared to me to be somewhat risky to allow of the instillation of a 1 per cent. solution of such a potent alkaloid as atropine repeatedly, at short intervals, in quite young children. I have known this done even up to six times, preparatory to retinoscopy.

On the other hand, I have had one patient, a female aged 46 suffering from glaucoma, in whom severe symptoms appeared with 1 per cent. drops of eserine sulphate. Epileptiform fits supervened. One of her sisters was epileptic, but she herself had never had any previous attack. After recovery, by some inadvertence eserine again was used, and the fits recurred. It was reported by my colleague Dr. T. Milnes Bride in *The Ophthalmoscope* (1913, vol. xi).—I am, etc.,

Manchester, Feb. 17th. J. GRAY CLEGG.

Iridocyclitis

SIR,—In his comprehensive article on iridocyclitis (February 8th, p. 249) Mr. Doggart discusses the part played by focal infection in the aetiology of the condition. In the section on treatment mention is made of the variable severity of the disease and the coincidental improvement which may follow spontaneously upon curettage of the cervix, tonsillar enucleation, or removal of the teeth. I think the following case is of considerable interest, and a substantial argument in support of the focal infective origin of some cases.

Mrs. X., aged 39, was referred from the Westminster Ophthalmic Hospital in April, 1931, with iridocyclitis of such severity that she had little more than perception of light. On examination the cervix, grossly diseased, showed evidence of an infection under tension in its tissue. She was admitted, and treatment by surgical diathermy carried out with such immediate improvement that while yet an in-patient she was able to read the daily paper. The improvement was only temporary, and three weeks later she was again referred from the ophthalmic hospital.

In view of the previous findings, and at the request of the patient and the ophthalmic surgeon, a total hysterectomy was performed. For the second time while still in the ward her sight recovered to such a degree that she was able to read again, and this improvement has continued and been maintained without relapse, so that she is once more able to carry on her work as a needlewoman.

—I am, etc.,

London, W.1, Feb. 14th. EVERARD WILLIAMS.

SIR,—Mr. J. H. Doggart (February 8th, p. 249), in a long discursive article on iridocyclitis, appears to me to "make confusion worse confounded." In my last book, *Tuberculin : Its Vindication by Technique* (1933), I published in some detail forty-three cases of tuberculous diseases of the eye, embracing thirty-five cases of iridocyclitis diagnosed and treated by my method of tuberculin administration ; and at the same time recorded ten cases in all (including eight cases of iridocyclitis) which proved absolutely negative to the tuberculin test, as I use it, both by the intracutaneous test and by Koch's method. Mr. Doggart prefers to give prominence to a number of observations dating from 1840, in which only one English authority is later than 1912. Even the Vienna ophthalmologists Meller and Urbanek are not mentioned, though their book *Die Bedeutung der Tuberculose für die entzündlichen Erkrankungen des Uvealtractus* (1929) is a valuable contribution to our knowledge of iridocyclitis.

I have been investigating the role of the tubercle bacillus in rheumatic diseases and in diseases of the eye for more than thirty years. I read a paper on tuberculous diseases of the eye in the Eye Section at the International Medical Congress in Melbourne in 1923 at the instigation of the late Sir Richard Stawell, and since 1902 I have been studying these lesions ; but although I approached Mr. Fisher of Moorfields and Mr. Ormond of Guy's Hospital I found no response. Mr. Treacher Collins was not deaf to my appeal, but I received no real encouragement till I sowed the seed of truth in Mr. Charles Leonard Gimblett's mind in 1927. Since then, with the collaboration of Mr. Gimblett and later of Sir Richard Cruise, Mr. Rugg-Gunn, Mr. James, Mr. Cole Marshall, and Mr. Taggart, I think that we have proved by logical method that very many cases of iridocyclitis are caused by the tubercle bacillus and by nothing else. By scientific analysis and synthesis on the lines of inductive logic we have isolated the antecedent and produced the desired consequent by the exclusive use of the antecedent ; so that it is useless for Mr. Doggart to "kick against the pricks" of logic in a disease of such serious moment as tuberculous iridocyclitis.

Mr. Doggart, not from any knowledge of his own, but still dogmatizing, says: "It has been recognized for a long time that the ordinary tuberculin diagnostic test was open to the objection that some focus of tubercle was present in almost every person." I say, from irrefutable facts, that in thirty-five cases I have proved by test doses, followed by specific treatment, which in essence has never been used before in iridocyclitis, every case has responded marvellously to tuberculin if the test has been positive, while I did not waste my time in treating eight negative cases which by my logic could not be benefited by tuberculin. Moreover, I proved that in ten of forty-eight cases there was no reaction to tuberculin.

I have proved in my cases of iridocyclitis that the tuberculin test properly used rarely leads us astray, and tuberculin treatment has invariably succeeded in all those cases which reacted to tuberculin, even when all else had failed ; but that there are some cases of iridocyclitis that cannot be treated successfully with tuberculin because the *causa causans* is not the tubercle bacillus, and no reaction to tuberculin occurs. If Mr. Doggart would visit my clinic at 11, Nottingham Place, W.1, any Monday afternoon he would see practical illustrations of the truth of my theory and practice in scores of cases.—I am, etc.,

W. CAMAC WILKINSON, M.D., F.R.C.P.

Wentworth, Surrey, Feb. 12th.

*** Dr. Camac Wilkinson has supplied case notes reinforcing his argument.—ED., *B.M.J.*

SIR,—May I correct a small error made by Mr. Sydney Tibbles in his letter in the *Journal* of February 15th, (p. 337). He says: "One source of infection—the appendix—has not been mentioned." In my paper on iridocyclitis, to which he refers, I said, under the heading of general theories of causation, "Other organs or tissues suspected are the tonsil, nasal sinuses, gall-bladder, genito-urinary tract (non-venereal infections), appendix or other parts of the alimentary tract, and skin."—I am, etc.,

London, W.1, Feb. 14th. J. H. DOGGART.

Analgesia in Midwifery

SIR,—I read with interest the recent article on anaesthesia and analgesia in childbirth (*Journal*, February 8th, p. 273). My own experience was in the clinics of Doederlein (Munich) and Opitz (Freiburg). Later on for cases of abortion I used an intravenous injection of about 5 c.cm. of evipan, at the same time injecting into each of the lateral fornices 10 c.cm. of a 2 per cent. solution of novocain-suprarenin. This prevented any appreciable blood loss, made the operation possible after the administration of only a small initial dose of evipan, and therefore did not affect the contraction of the uterus. I was so impressed with the results of this type of intravenous anaesthesia that I was led to try the same technique for the relief of pain in childbirth. The technique which was finally elaborated was as follows, using in these cases pernocton rather than evipan, although this latter is the more modern and at least equivalent drug.

As soon as the cervix was dilated to admit one finger, and the pains were regular, 2 or 3 c.cm. of pernocton were injected intravenously, very slowly, taking some two minutes or perhaps longer over the actual injection. The effect is dramatic, and represents all that is needed in the way of intravenous injection. Further injections of 2 or 3 c.cm. were given, as necessary, intramuscularly, and maintained the relief from pain though apparently not affecting the uterine contractions. With regard to the successive intramuscular doses, no hard-and-fast rules can be laid down, but up to 6 to 8 c.cm. of pernocton may be given intramuscularly without any fear of toxic reactions.

I have never seen the child affected by the use of this drug, and this fact, with the other advantages I enumerrate, makes this an almost ideal type of analgesia for midwifery. The only point where danger may arise is in the actual intravenous injection of the drug. The injection must be made slowly, and should always take one minute for every cubic centimetre.—I am, etc.,

ROBERT KUHN,
Formerly of Baden-Baden.

London, W.2, Feb. 9th.

Prostatectomy

SIR,—I should like to take this early opportunity of thanking Mr. B. G. S. Belas for his helpful commentary on my article "Prostatic Resection." Mr. Belas raises three points of criticism: (1) possible damage to urethra and sphincter by heat conducted down the speculum; (2) danger of haemorrhage when the final coagulum separates; (3) the question of sepsis.

In reply to the above points I should like to state that the question of danger from conducted heat caused me a lot of anxiety during the first few operations, so much so that I considered getting an ivory speculum made (as stated in my article). So far I have not had any trouble from this source, and have come to regard the risk as only "theoretical." Any contact of electrode and speculum would only be momentary, and the moisture of the surrounding tissues evidently acts as an efficient "water-cooling system."

The risk of secondary haemorrhage is inseparable from all diathermy operations, and like many other surgical risks it just has to be taken. However, I think the method of constant irrigation with sodium citrate during the post-operation period does a great deal to reduce this risk.

Sepsis is again a factor inseparable from diathermic procedures in infected tissues; but the amount of sepsis in the small smooth area resulting from a diathermic resection must be less than that in the cavity left after any operation of total prostatectomy, with the possible exception of the Harris operation, which latter should certainly be performed in preference to any partial resection in all cases considered capable of surviving the major operation. I have not had any experience with special resectoscopes, but am grateful for the information that such instruments can be used for the "retrograde method."—I am, etc.,

C. DUNDAS MAITLAND.

Guildford, Feb. 16th.

Nutritional Needs

SIR,—In his helpful letter in your issue of February 15th (p. 335) Dr. Harry Campbell says that man's "system has become organized for digesting, assimilating, and metabolizing animal food." Will he please favour your readers with exact anatomical and physiological facts to support the above statement.—I am, etc.,

SYDNEY M. WHITAKER.

Wythenshawe, Manchester, Feb. 16th.

Cancer in the Far East

SIR,—Dr. I. Lloyd Johnstone, in a letter published in the *British Medical Journal* of February 8th (p. 283), says that it is difficult to estimate the prevalence of cancer in the Far East. Having spent nearly twenty years in Tungkun, a large town in the province of Canton, I was able to compile statistics which might help to elucidate the problem. From my book on *Tropical Hygiene*[1] I quote the following:

During a period of six years:
34,197 Chinese were examined. We noted
187 cases of malignant growths—that is, 0.5 per cent.;
299 cases of benign growths—that is, 0.9 per cent.

During the same period at the Royal Infirmary, Edinburgh:
68,639 patients were examined. They included
3,890 cases of malignant growths—that is, 5.6 per cent;
1,183 cases of benign growths—that is, 1.7 per cent.

Three reasons are given to explain this difference:

1. The frugality of the Chinese diet, which consists mainly of rice, vegetables, fruits, and small quantities of salt fish.
2. The almost total abstinence from alcohol.
3. Free evacuations of the bowel.

This seems to support the opinion of those who deny the bacillary origin of cancer. Professor Askanasz of Geneva speaks of a "carcinogenic factor" of a chemical nature. This factor, elaborated in our bodies, may be responsible for the production and quasi-immortality of the cancer cell.—I am, etc.,

JOHN E. KUHNE.

London, N.W.1, Feb. 14th.

Treatment of Erysipelas, Acute Cholecystitis, and Acute Pyelitis

SIR,—Some months ago there were letters in the *British Medical Journal* about the treatment of erysipelas with serum and the desirability of operative as opposed to the expectant treatment of acute cholecystitis.

Erysipelas.—A few years ago an Egyptian doctor, whose name I have unfortunately forgotten, wrote from Cairo recommending the intramuscular injection of milk in cases of erysipelas, and claiming results which sounded too good to be true. I determined to try the treatment, and found that his claims were in no way exaggerated. Since reading his letter I have had the opportunity of treating only some half-dozen cases. In each patient I injected intramuscularly 10 c.cm. of boiled cow's milk, filtered through gauze, with the result that

[1] *Manuel d'Hygiène et de Médecine Tropicales*, p. 84. Editions Labor, Rue de l'Athénée 4, Genève. H. K. Lewis and Co., Gower Street, London.

the patients were cured within eight hours—that is, before my next visit. By "cured" I mean that the temperature had dropped from 104° or 105° to normal and did not again rise above normal, and that the patients felt, and apparently were, perfectly well. I imagine that serum does not usually give such dramatic results; it is certainly more expensive than milk and not so readily procured. It should be noted that these remarks apply only to true erysipelas (not cellulitis), and that the more virulent the infection the more dramatic has been the result.

Acute Cholecystitis.—I learned from one of my foreign colleagues to treat this condition by intravenous injection of urotropine. I use 5 c.cm. of 40 per cent. urotropine as supplied in ampoules by Schering. Again I have been able to treat only some half-dozen cases in this way. Each patient was clinically cured within twenty-four hours, and I do not recall having to repeat the injection. The injection can, however, be given at least twice daily for some days, if necessary, without producing the slightest discomfort or unpleasant symptoms. I have certainly been fortunate in seeing these patients very soon after the beginning of the illness. Possibly the injection would not be so effective if given at a later stage, and would need to be repeated.

Acute Pyelitis.—As learned from foreign colleagues, I have treated several cases of acute pyelitis by intravenous urotropine (as above) with results very much better than I have had with any other treatment. As a rule I have given 5 c.cm. of the 40 per cent. solution (Schering) twice daily, and usually the patient has been clinically cured within forty-eight hours. I had one such case last week—an acute pyelitis of pregnancy: temperature 104°, tender kidney, and much pus in the urine. On this occasion I gave the urotropine only once daily, instead of twice, and it was not until the fourth day that the temperature finally settled down to normal. The renal pain had disappeared within thirty-six hours. It should be noted that the intravenous urotropine appears to have little effect in cases of acute cystitis.

While recently in England I gathered that the treatment of erysipelas by injection of milk and intravenous urotropine for acute cholecystitis and acute pyelitis were not in general use. I hope that they will be tried in a large series of cases, and that the result will be published.—I am, etc.,

E. N. RUSSELL, M.D., B.Ch.Camb.

San Stefano, Alexandria, Jan. 26th.

The Departmental Committee on Coroners

SIR,—A departmental committee of inquiry, under the presidency of Lord Wright, Master of the Rolls, has now issued a report relative to the duties and powers of coroners. It recommends that the coroner's court be concerned solely with the investigation of the cause of death where the circumstances point to a felonious agency or criminal neglect. It would preclude him from exercising the more judicial function, which has hitherto devolved upon him, of committing for trial persons deemed to be guilty of murder, manslaughter, or infanticide. This curtails his jurisdiction. Verdicts of "felo de se" and "suicide while of unsound mind," the committee agrees, should be abolished, and the phrase "died by his own hand" should be substituted. In the first case change is unnecessary, as the Act of 1882 abolishes all subsequent indignities and forfeitures; yet the guilt and stigma tarnish the fame. In the latter, the deceased may actually have been insane. The stigma of self-murder is now incurred where the law, heretofore, has been generously pleased to regard the act as being done by one not amenable to indictment (though the courts were impotent to impose penalties) because of his abnormal mental condition.

That the Press should be prohibited from recording more than the actual fact of cases of suicide will meet with little criticism. A disciplinary body will hear and deal with complaints against coroners. This may have the desired result of restraining the absurdities and indiscretions by which many officials have been distinguished.

Section 6, however, impinges on a point of serious concern to our faculty. It proposes that future appointments of coroners be made solely from the ranks of the legal profession. This is an unwarrantable encroachment on our ancient rights. The procedure in conducting inquests is to be simplified as the juridical element is to be eliminated, but, as the duties are to be confined to establishing the cause of death without reference to individual responsibility, the exclusion of doctors who are not also lawyers from these positions is unreasonable, and will be conducive to verdicts often discordant with sense.

It is easier for a medical man to acquire a knowledge of a few rules of law than for a lawyer to learn even the rudiments of medicine. In questions involving an alleged sudden death, where the circumstances, reported by the responsible persons, are weighed by the doctor, his opinion as to the desirability of holding an inquest must carry greater weight than that of a layman incapable of comprehending pathological phenomena perhaps long antecedent to death.

Unless strong representations are made by interested bodies relative to this deliberate exclusion of medical men as such, the suggestions incorporated in this report may receive legislative sanction at an early date, when all redress will become impossible. The matter brooks no delay.—I am, etc.,

Dublin, Feb. 8th. JOHN SHIEL, L.R.C.P., L.R.C.S.
Barrister-at-Law.

SIR,—In your leader of February 15th, commenting on the report of the Departmental Committee on Coroners, you say "it is almost essential for the coroner to have medical qualifications." As I read the report, the suggestion that only solicitors or barristers should be made coroners means, in fact, *practising* solicitors or barristers. There are not a few medical men who are, as you state, barristers, but surely very few indeed who practise law. This may mean that medical men with legal qualifications may rarely be made coroners.

I can think of many reasons why medical men should still retain the privilege of being eligible for the office of coroner, and no real cogent reason why they should not. It seems to me that medical men ought to protest against this suggestion of the report, lest the privilege of eligibility of appointment may be taken from us, and, incidentally, an incentive for medical men to study for the Bar.—I am, etc.,

Reading, Feb. 17th. W. C. D. WALMSLEY,
M.B., Ch.B., D.P.H.

Fire-walking

SIR,—While smiling at Sir James Purves-Stewart's humour and agreeing with him that an emotional state may prevent the feeling of pain, I do not admit that such can prevent the burning of the dead outer horny layer of the skin or of a piece of strapping stuck under Kuda Bux's feet. In my own experiments with a thick stick of incandescent charcoal I suffered little pain, but there were signs of burning of the outer horny layer of the skin. Traces of such seemed to have been present in the skin of Kuda Bux's feet, but the brown colour made the evidence of this less conclusive. The cotton threads at the edges of the piece of strapping appeared scorched. As an example of how protective the spheroidal state of water can be, Professor Andrade told me of a scientist who dared, and successfully, to put liquid air into his mouth. This is a severer test than plunging the arm in and out of molten lead.—I am, etc.,

Chalfont St. Peter, Feb. 16th. LEONARD HILL.

SIR,—May I be permitted to point out that Sir James Purves-Stewart, in his letter on fire-walking in your issue of February 15th, is hardly correct in maintaining that his own clinical observations and those of Professor Waterston were unanimous. For in the original article of December 28th he talks of normal responses to thermal stimuli both before and after the ceremony, whereas Professor Waterston stresses at some length the abnormal resistance to heat of the feet of the performers as compared with those of ordinary individuals.

I see that Major-General T. M. Corker has quoted the case of the late Mrs. Champion de Crespigny handling a burning log. No one who had the privilege of her acquaintance could regard this lady otherwise than as a most level-headed and reliable witness. Well-attested instances of prolonged exposure to fire of human tissues without injury could, however, be multiplied from the records of psychical research, and it seems futile to attempt elucidation of these phenomena on the grounds of trickery or of normal physiology, and suggestion, "auto" or "hetero," is no adequate explanation of the processes involved.

It must be recognized that certain individuals have the power, in some cases inherent and in others acquired, to control or transform energy in ways at present unknown to science, and at times can direct this energy so that it acts at places they themselves determine.—I am, etc.,

Twickenham, Feb. 15th. A. G. THOMPSON.

SIR,—An experience which two Indian Army officers and myself had at a fire-walking demonstration, which we attended at Ahmednagar, India, in 1913, was the following:

Hearing one evening that an Indian magician was giving a demonstration of fire-walking the three of us went to see it. On arrival we found a number of spectators gathered in a circle around the spot prepared for the demonstration: a shallow trench, about five or six yards long, and some feet wide, lined with a layer of red-hot charcoal, the surface of the charcoal being several inches below the level of the top of the trench. We had not long to wait before the magician gave his display. He stepped into the trench, walked to its further end, and then came to the circle of spectators to show that his feet had received no injury. This was followed by a similar demonstration by three or four of the magician's assistants, he having first pronounced some incantation over them, which he said would protect them from harm. These men, however, had not in every case removed their socks as well as their shoes, but no burning of their feet or scorching of their socks was evident afterwards.

The magician then told the spectators that any of them could do the same thing under his protection, and, at the instigation of one of our party, the three of us came forward. What was presumably the same incantation was repeated in the vernacular for our benefit while we were removing our shoes, and we were then told we could proceed. One of my companions had removed his socks as well as his shoes, but the other and myself took the precaution of keeping our socks on. As we were about to start we were warned by one of the magician's assistants not to hurry, but to walk slowly, and this unwelcome advice we tried to follow. We stepped into the trench, one after the other, walked to its further end, and stepped out again, and found that, with the exception of the one of us who had removed his socks, we had suffered no inconvenience nor were our socks scorched. In his case the soles of the feet showed a certain amount of blistering subsequently, but he told me afterwards that he had suffered more from thorns lying on the ground he had to walk across, when he was led over to the spectators for his feet to be shown to them, than from the contact of his feet with the hot embers previously.

While the member of our party who had walked the trench with bare feet was being shown to the spectators the other two of us remained near the trench putting on our shoes. Before he did so, though, my companion, after expressing himself forcefully on what he considered to be the ridiculous pretensions of the magician in claiming that it was through his influence that we had incurred no injury, stepped into the trench and again walked to the other end of it without suffering any ill effects. This caused much amusement among the spectators, and the magician, on hearing the laughter and discovering its cause, appeared to be annoyed, and, coming hurriedly over to the trench, he extinguished the fire with buckets of water, which were near to hand for that purpose, and so terminated the proceedings.—I am, etc.,

Croydon, Feb. 10th. J. B. LAPSLEY, Lieut.-Colonel I.M.S. (ret.).

SIR,—This controversy was concisely summed up 1,900 years ago: ". . . whosoever shall say unto this mountain, Be thou removed, and be thou cast into the sea; and shall not doubt in his heart, but shall believe that those things which he saith shall come to pass; he shall have whatsoever he saith." Faith is neither Christian nor pagan sentiment, but is a fundamental attribute of the human race. How it works we do not know, but it works.—I am, etc.,

Dundee, Feb. 15th. J. M. STALKER, M.D.

Euthanasia

SIR,—While sympathizing with those who wish to shorten useless suffering, I do not think the proposed Bill is needed, and if passed it would be futile, for the reasons pointed out by your correspondents. It is, however, within the power of every medical attendant to prevent pain and shorten the period of suffering where there is no hope of recovery. In forty years of practice I have on four occasions kept the patient deeply under morphia till released by death. It is obviously our duty not only to try to cure, but to relieve suffering when this is impossible. Is any law needed to emphasize this? Cannot we take the responsibility of shortening life while we ease pain without legal sanction? If not, then have a law to satisfy those who have not the courage of their convictions. When now we have pushed a narcotic so that the lesser sleep becomes the greater, is there any need to proclaim it to all the world? The cases where such action is not only justified but essential, if one does one's duty, are not very numerous, and we must not shrink from letting the patient go through suffering when recovery is possible. Many years ago Sir Lauder Brunton told us at Bart's that he had a silver cup on his sideboard, presented to him by a patient who had recovered after a crisis in which he was sorely tempted to push morphia. It is the physician's job to know when to give or withhold, and what to use.—I am, etc.,

W. GUYON RICHARDS, M.B.Camb.

London, W.1, Feb. 15th.

Birth Control

SIR,—I regret that I cannot agree with the secretary of the National Birth Control Association that the euphemistic term "birth control" describes at all adequately present-day preventive policy in practice. If it did so there might be no need to say more. The spread of birth-prevention teaching has been associated with an increase rather than a decrease in the amount of abortion. The extent of such propaganda is justified neither by illness nor by that nihilist refusal of parenthood sometimes self-complacently construed as unselfishness. Commercialization has, in truth, removed all control. The unchecked development of this attack on the strength of our race threatens the destruction of our ideals and our Empire.—I am, etc.,

London, W.1, Feb. 16th. GEORGE H. ALABASTER.

Obituary

A. J. SCOTT PINCHIN, M.D., F.R.C.P.

Physician, City of London Chest Hospital

We announce with regret the death after a short illness of Dr. Arthur John Scott Pinchin, aged 59. He was born at Sutton, in Surrey, in 1877, and was educated at Dulwich College, proceeding later to St. Thomas's Hospital. There he took the London M.B. in 1907, and M.D. with a gold medal in medicine in 1909, and some five years later he obtained the M.R.C.P., being elected F.R.C.P. in 1930. He was a house-physician to Dr. T. D. Acland at St. Thomas's and later casualty officer at the same hospital. After leaving there he settled in general practice at Egham, Surrey, until 1912, when he took up consulting practice as a physician. He became senior physician to the Hampstead General Hospital and consultant tuberculosis officer for the borough of Hampstead, and he was on the staff of the West London Hospital and the City of London Chest Hospital. He was appointed physician in charge of the electrocardiograph department at Victoria Park shortly after the war, and with his colleague Dr. H. V. Morlock started a bronchoscopy clinic there in 1930. During the war he served with the rank of temporary captain in the R.A.M.C. He was a member of the West London Medico-Chirurgical Society and a Fellow of the Royal Society of Medicine and of the Medical Society of London.

Dr. Scott Pinchin was interested mainly in chest conditions, and his numerous publications on cardiography and pulmonary conditions included contributions to the *Lancet*, to the *Practitioner*, and to the *British Medical Journal*, in which last his most recently published work was "Benign Neoplasms of the Bronchus" (August 24th, 1935).

Dr. G. BASIL PRICE writes: Scott Pinchin has died at a time when he was enhancing his already established professional reputation and entering into a heritage of recognition, the foundations of which were laid during long years of faithful and patient work. I first knew him during the war, when he was on my staff at Imtarfa Military Hospital, Malta, and he has been a close and valued friend ever since. His professional acumen and his knowledge and experience, particularly in chest cases, were outstanding, and his opinions and judgement were always of great value. His contributions to medical literature have been numerous, especially of recent years, when his extended use of the bronchoscope for the diagnosis and treatment of pulmonary conditions attracted considerable notice and brought many to see his procedure and practice. One could not but admire the thoroughness and integrity of his work, associated as it was with an attractive modesty and self-effacement which perhaps hindered an earlier and more general recognition of his work. He would tolerate no subterfuge or sham, and yet had a charity of spirit that was above all meanness or smallness. His life has enriched his generation, and his loss will long be felt.

"W. G." writes:

To many in the profession, and especially to housemen, past and present, the death of Scott Pinchin brings a heavy and personal loss. From all his colleagues he was certain of respect, but among the younger men working in the hospitals to which he was attached that respect passed in many instances from admiration to a sincere affection. At first glance it was difficult to see why it should have been so. His was not a commanding presence, he had none of the stagecraft which is so important a weapon in the fashionable physician's armamentarium, nor did he try to develop it. But youth, hard and intolerant though it may be, is quick to give its allegiance where honesty and sincerity lie, and of these virtues Scott Pinchin had enough and to spare. In the past few years private practice seemed to make heavy calls on his time and strength, but still his hospital work, and especially the work at Victoria Park, remained the main interest of his life, and it was characteristic of the man that he seemed to take a deeper interest in his hospital cases than in those he saw in private. His varied experience had taught him that though illness may be financially inconvenient for the rich it is too often economically fatal to the poor.

The hour in the common room after the ward round was one of the happiest in the hospital week, for then Scott Pinchin revealed qualities which a casual observer might have missed and assumed to be wanting—wit, light-heartedness, and humour. With a deep chuckle and twinkling eye, the twinkle somehow brightened by that inexplicable tic of his facial muscles, he would relate some *faux pas* of his own, or gleefully poke fun at his houseman for being carried away by the latest eccentricity of fashionable therapeusis. These were, it seemed, among his happiest hours—hours well wasted—and it is hard to believe that they cannot come again.

ADOLPH BRONNER, M.D.

Consulting Laryngologist, Bradford Royal Infirmary

We regret to announce the death of Dr. Adolph Bronner at Bradford on February 7th. He was a well-known specialist, an authority on hospital administration, and a zealous supporter of the British Medical Association. Born seventy-five years ago, he was the son of Dr. Edward Bronner, a leading practitioner of Bradford.

He was educated first at the Bradford High School and Grammar School, and received his medical training at University College, London, at Heidelberg, and Berlin. He graduated M.D. at Heidelberg in 1884, and obtained the diploma M.R.C.S. in the following year. He took over his father's work at the Bradford Royal Eye and Ear Hospital in 1886 after working as clinical assistant at the Royal London Ophthalmic Hospital, and was connected with the Bradford hospital until his retirement in 1922. During twenty of those thirty-six years he was also laryngologist to the Bradford Royal Infirmary, and was subsequently elected to the consulting staff. He had been president of the Leeds Medico-Chirurgical Society, secretary to the Otological Section of the International Medical Congress at Berlin in 1890, and secretary to the Otological Section of the succeeding Congress at Rome four years later. He was a member of the Ophthalmological Society and a Fellow of the Royal Society of Medicine. Elected to membership of the British Medical Association in 1887, Dr. Bronner was secretary of the Section of Otology two years later at the Annual Meeting of the Association at Leeds, and vice-president of the same Section at the Annual Meeting of the Association in 1893 at Newcastle-upon-Tyne. He was assistant secretary of the Yorkshire Branch from 1890 to 1895, secretary and treasurer from 1896 to 1914, and president in 1915. He served on the central Council of the Association from 1902 to 1904. Dr. Bronner was unmarried. Since his retirement he had resided in various places, and more recently in Harrogate. His exceptional experience of hospitals in Germany as well as in this country, together with his capacity for organization and his professional skill, won him the respect of a very wide circle. A memorial service at Bradford Cathedral on February 11th was attended by many former colleagues and friends.

A friend of forty years sends the following tribute:

By the death of Dr. Adolph Bronner a noted figure has passed from among us. He came to Bradford—his native town—in 1885 a young graduate of Heidelberg, where he had specialized in ophthalmology and otology, to join his father, the late Dr. Edward Bronner. Though associated at first with his father in family practice, he identified himself from the first with his specialties, and

on his father's death in 1886 devoted himself solely to them. His father had, with the late Dr. J. H. Bell, founded what is now the Royal Eye and Ear Hospital, and there Adolph Bronner laboured until the age limit compelled his retirement. A marble tablet in the entrance hall of the hospital, placed beneath that to the memory of his father, commemorates his great services. His name was a household word for many years, patients coming to him not only from the West Riding but from the Yorkshire dales and the neighbouring counties. His reputation was well deserved. Thorough in all he did, anything like slipshodness or roughness in others was anathema ; even in the busy throng of hospital work I have never heard him speak one unkind word. His care for his patients was not confined to their ailments ; many a sovereign and, now and again, even a five-pound note was slipped into the hand of some needy patient. Of a convivial nature, no medical dinner was complete without him. His deep knowledge and his great skill as an operator combined with his cheery nature won him the confidence and affection of young and old. Said a little girl on her return from a professional visit to him, "Father, I've been to see a *real* doctor to-day," and thus summed up as no other words can do his quality as a surgeon and as a man. A year or two after his retirement from hospital practice he retired from consulting practice also. A bachelor without a settled home, he visited places where he could indulge his hobbies, fishing and golf, and where he could enjoy the company of his many friends, till in his final illness he returned to his native city to die.

F. W. E.

ETHEL MILLER VERNON, M.D.

Dr. Ethel Vernon, one of the best-known practitioners in Westminster, died on January 19th. She had been in general medical practice in Millbank for over thirty-three years, and during that period had built up a large practice, chiefly among the women and children in that part of Westminster. She was the eldest daughter of Thomas Heygate Vernon, being one of three members of that family to enter the medical profession. Of her two brothers, Arthur, who died last year, was a surgeon of great ability, practising in the neighbourhood of Bournemouth ; Horace is the well-known authority on industrial hygiene.

Dr. Vernon was one of the early group of women to qualify through the London School of Medicine for Women. She obtained the L.S.A. in 1897 and the M.D. of London University in 1901, a very notable achievement in those days when women candidates for the higher degrees were not so numerous as they are to-day. But Dr. Vernon possessed more than the average of feminine courage and determination, which, together with an unusually robust constitution and physique, enabled her to achieve success in fields where prejudice against women doctors might still be found. In the early days of her practice midwifery occupied much of her time, and she thus became the friend and counsellor of many families even to the third generation in Westminster. Her success was largely based on her shrewd clinical instinct and her sympathetic understanding of the domestic problems so often associated with illness in homes where the mother is already overburdened with household cares. She shared their troubles to the extent that she would deny herself even the most modest luxury to help a sick mother or child who could not afford a holiday. Frequently they became her own guests at her seaside house in Sussex. Acts like these were known only to those who benefited ; for her charity, and it was great, was done in secret.

For over twenty years she had been associated with the child welfare movement, and held such appointments as medical officer to the Borough Road Infant Welfare Centre, the Sutton Nursery School, and Highgate School for Girls. Among her former appointments were those of medical officer to the Society of Overseas Settlement of British Women, demonstrator of physiology at the London School of Medicine for Women, house-surgeon at the New Hospital for Women, and assistant anaesthetist to the Royal Free Hospital. Since 1919 she had been medical officer to two of the City of Westminster welfare centres, and was greatly beloved and respected by hosts of women and children who had come under her care at the various clinics. It was her devotion to this work which led to her unexpected death from pneumonia. She persisted in remaining at work, though obviously suffering from a very severe cold. She herself had never had a day's illness and ignored it when it came.

Among Dr. Ethel Vernon's many social and charitable activities was her devotion to Charing Cross Hospital, where she played the music for the Sunday services. She was likewise active in stimulating public interest in improving housing conditions. In fact, the motive power of her whole life was, as so well expressed by the Rev. Pat McCormick at the beautiful memorial service held at St. Martin-in-the-Fields, her abundant love for her fellow mortals.

Dr. PRIESTLEY LEECH, who died in Halifax on February 7th at the age of 73, had celebrated his golden wedding last October. He was a native of Halifax, and received his medical education at Owens College, Manchester, qualifying L.S.A. in 1884 after a distinguished career as a medical student. He obtained the diploma M.R.C.S. in 1885, graduated M.B., B.S.London in 1888, became a Fellow of the Royal College of Surgeons of England in 1889, and proceeded M.D. in 1892. Specializing in surgery in addition to carrying on an extensive general practice in Halifax, he had been for many years surgeon to the Royal Halifax Infirmary, and later was elected consulting surgeon. He had also been medical officer to the local venereal clinic and to various assurance societies, as well as medical referee to the Royal National Sanatorium for Consumption and Diseases of the Chest at Bournemouth and to the National Hospital for Consumption at Ventnor. He had contributed various articles on surgical subjects to these columns and those of the *Lancet* and other medical periodicals. At one time he edited the section on general surgery in the *Medical Annual*. Dr. Leech joined the British Medical Association in 1892, and was chairman of the Halifax Division in 1906. He had also been president of the Leeds and West Riding Medico-Chirurgical Society and the Halifax and District Medical Society.

Dr. ERNEST BURCHELL, who died on February 8th at the age of 74, was in former years an active worker in the British Medical Association. He studied medicine at the London Hospital, and after qualifying M.R.C.S., L.R.C.P. in 1888 he went into practice at Brighton, where he held a number of dispensary appointments. In 1912 he acted as assistant honorary secretary of the Brighton Division of the old South-Eastern Branch of the B.M.A., and he became honorary secretary and treasurer of the Division in the following year, when the Sussex Branch was first recognized. He held this office for eight years, being succeeded by Dr. L. A. Parry in 1921. Dr. Burchell was a member of the Executive Committee of the Brighton Division in 1912 and again in 1913 ; he represented the Division on the Sussex Branch Council from 1914 to 1920 ; and he acted as deputy representative in the Representative Body in 1917, 1918, and 1921. Ernest Burchell, writes a correspondent, was the last survivor of a family long associated with medical practice. His father, Peter Lodwick Burchell, M.B., F.R.C.S., who died in 1892, practised for nearly fifty years in the Kingsland Road, London. His sister Annie (died in 1904) married the eldest son of his father's apprentice, Dr.

Major Greenwood (died in 1901), who also practised for nearly fifty years in the district. The eldest son, the late Major Greenwood, M.D. (died in 1917), an active and enthusiastic member of the Council of the B.M.A. a generation ago, and three of his five brothers, all now dead, were medical practitioners. Of the third generation of the family one died as a medical student and another, Professor Major Greenwood, F.R.S., is a member of the profession. Of the fourth generation one is now a medical student.

Dr. ROBERT WILLIAM SAMUEL CHRISTMAS, who died on January 30th at the age of 78 after a fortnight's illness, was a well-known and popular resident in Bozeat, Northamptonshire. He had had a distinguished student life at Charing Cross Hospital, winning the gold medal in clinical medicine and surgery, and another medal in pathology and minor surgery. He qualified L.S.A.Lond. in 1894, and obtained the diplomas M.R.C.S., L.R.C.P. in the next year. In 1896 he joined the British Medical Association. His private practice was interrupted by the war. He served abroad with a temporary commission in the R.A.M.C. from 1916 to 1922, and obtained the rank of major. Dr. Christmas was a lecturer to the St. John Ambulance Association, and a medical referee to the Prudential Assurance Company. He had contributed notes on clinical subjects to these columns.

Dr. ARCHIBALD ALEXANDER GEORGE DICKEY of Bolton died on January 20th at Pwllheli, three months after retiring from practice. Born seventy years ago, he received his medical education at Queen's College, Belfast, where he was the holder of a scholarship and various prizes. In 1883 he graduated M.D. of the Royal University of Ireland, and obtained the diploma L.M. of the Royal College of Physicians of Ireland. Two years later he became L.R.C.S.I. At Colne, where he practised until 1921, he was a justice of the peace, medical officer to the Cottage Hospital, surgeon and examiner to the St. John Ambulance Brigade, and surgeon to the Post Office. During the war he was in charge of the military hospital there, and was later awarded the M.B.E. From Colne he went to Bolton, where he held public appointments, including that of medical officer and public vaccinator of the Halliwell district. His death took place in the house of his son, Dr. H. W. Dickey, at Pwllheli.

Dr. JOHN HENRY WILLIAMS, M.P., who died on February 7th from pneumonia at his residence in Burry Port, Carmarthenshire, had represented Llanelly in the Labour interest since 1922. Born in Liverpool in 1870, he was educated at Cardiff and the London Hospital, and obtained the L.S.A. diploma in 1902. After a period of service as ship surgeon to the Booth Line he settled in general practice in Carmarthenshire, and took an active interest in local affairs, among his appointments being those of deputy medical officer of health for Burry Port, chairman of the local district council, chairman of the public health and child welfare committees of the Carmarthenshire County Council, as well as of the council, of which he was an alderman. He had been associated with the management of King Edward VII Memorial Hospital, and was a justice of the peace. He had won Parliamentary elections for Llanelly in 1922, 1923, 1924, 1929, 1931, and 1935, being returned unopposed last year.

With the death of Dr. VALENTINE LLEWELLYN WATSON JONES of St. Clears, Carmarthenshire, on January 20th, in his eighty-third year, the British Medical Association loses one of its most loyal members. After studying at the London Hospital he took the diploma M.R.C.S. in 1875 and the L.R.C.P. in 1876, and in the latter year he joined the Association, remaining a member until his death. Dr. Jones held the post of medical officer and public vaccinator to the Carmarthen County Council until his retirement two years ago, and he also acted as certifying factory surgeon to the district. He and Mrs. Jones, who survives him, celebrated their golden wedding last year.

The death is announced of Dr. KARL MARCUS on December 30th, at the age of 62. He was the Medical Director of the St. Göran Hospital in Stockholm, and the principal author of the Swedish *Lex Veneris* of June 20th, 1918.

MISS A. E. CUMMINS

Dr. H. G. TURNEY writes: On February 8th Miss A. E. Cummins died quite suddenly while engaged on putting into order a cottage which she had recently taken in Hampshire. It was in 1929 that, on grounds of ill-health, she had resigned the post of chief almoner to St. Thomas's Hospital, to which she had been appointed in 1905, and since then her health had not been good, though she was still able to keep in touch with the social services which lay closest to her heart. She was the first lady almoner at St. Thomas's and had received her previous training at St. George's Hospital with Miss Mudd, and with the addition of Miss Stuart, who held a similar post at the Royal Free Hospital in 1895, these ladies may be regarded as the inaugurators of systematic social service in London hospitals. Miss Cummins was, however, eager to recognize that the primary inspiration of the movement came from C. S. Loch, the greatest practical philanthropist of the last century. At the present day it is almost uncanny to read Loch's prophetic expression of his ideals which have now been translated into sober fact by Miss Cummins and her successors. It was Loch who protested against the vulgar idea that the only functions of the lady almoner were to guard against the bugbear of "hospital abuse" and to get as much money for the hospital out of the patient as possible. Unfortunately this is a point of view which cannot be altogether neglected, but the introduction of national insurance and the great changes in economic conditions which have followed the war have to some extent made it out of date. Contributions by patients now provide quite a considerable element for hospital finance, and this without any form of compulsion except a moral one. The keynote of the work is now social service, not finance.

One of the surgeons on the St. Thomas's staff at that time—H. H. Clutton by name—was a close friend and admirer of Loch, and he conveyed Loch's conceptions of what a Lady Almoner's Department should be to the Governors with a strong recommendation of Miss Cummins as the most suitable person to be put in charge. Thus it was that Miss Cummins entered the service of the hospital as the first lady almoner under the most favourable auspices. Moreover, she herself had the true spirit of the pioneer and a gracious personality which made it possible for her to introduce innovations without arousing antagonism. So the years from 1905 to 1929, during which she held her post, witnessed the development of the department and the extension of its activities into every corner of the hospital in a way that was most remarkable until one recognized the great new force that was at work. At the outset her resources were limited to the ancient Samaritan Fund, the main use of which was to provide surgical instruments for out-patients and occasional convalescent home treatment. A few years later the Northcote Trust was founded to do for the in-patients what the Samaritan Fund had done for those outside. But it is possible only to give a short summary of the various forms of helpfulness which, as time went on, were added to the original responsibilities. Such were the maternity and child welfare work, the following up of cases to their own homes, whether of cancer or tuberculosis. In 1915 there was a great expansion in connexion with the V.D. Department under the Ministry of Health. The year 1918 saw the opening of the infant welfare centre, and in 1921 classes were started for fathers. It is now seven years since the department lost Miss Cummins, and it is satisfactory to note that there are no signs of flagging, and her successor is able to keep alive the old enthusiasm.

Medico-Legal

ACCIDENT TO A PATIENT'S MOTHER

Liability of Hospitals

On February 13th the Court of Appeal, consisting of Lords Justices Slesser and Scott and Mr. Justice Eve, dismissed an appeal brought by the Westminster Hospital against a judgement of Mr. Justice Horridge, delivered in the King's Bench on July 18th, awarding to Mrs. W. W. Weigall damages amounting to £2,826, with costs against the hospital.

The facts found by Mr. Justice Horridge in July were as follows. Mrs. Weigall's son required radiological treatment, and she consulted Mr. Stanford Cade, an honorary surgeon of the Westminster Hospital. Through Mr. Cade she booked a private ward in the Westminster Hospital Annexe in Hampstead at the rate of nine guineas a week, and made a separate agreement with Mr. Cade to treat her son for a fee of 125 guineas. While her son was in the private ward she visited him, and on one occasion desired to consult with Mr. Cade about his condition. Mr. Cade took her for this purpose to a small room known as the "sister's office," which was ordinarily used for such consultations. Its floor was of linoleum, highly polished to keep it aseptic. Mrs. Weigall walked across the room to the fireplace, in front of which was a mat; as soon as she trod on the mat it slipped away from her, and she fell, breaking her thigh. Her injuries and the amount of the damage she suffered were not disputed by the hospital.

The learned judge's decision turned, of course, on the question of what duty, if any, the hospital owed the lady to see that she did not come to harm on a slippery mat. There are three kinds of persons who may come on to premises, and the occupant owes them respectively—quite apart from contract—three degrees of duty. If he invites a person to come on to his premises in pursuance of an interest shared by him and that person, the person is an invitee, and he must take reasonable steps to make the premises safe. If he allows a person to come on the premises for a purpose in which he has no interest the person is a licensee, and the occupier must take reasonable steps to protect him from unusual and hidden dangers. A person who comes on to premises without the leave of the occupier is called a trespasser, and to him the occupier owes no duty at all, except to refrain from setting traps likely to cause him serious bodily harm. The learned judge found as a matter of law that, whether the lady was an invitee or a licensee, the hospital, in the circumstances, still owed her the duty of arranging that the mat should not slide on the floor. In his opinion it constituted an unusual danger.

On the hearing of the appeal Mr. H. J. Wallington, K.C., who appeared with Mr. P. D. Cotes-Preedy for the Westminster Hospital, argued that there were two separate contracts. The first was made by Mrs. Weigall with the hospital through Mr. Cade as its agent, and by it she agreed to pay the hospital nine guineas a week for the consideration that the hospital should supply her son with a private ward, appropriate food and service, and the benefit of treatment apparatus, and allow her to visit him at suitable intervals. Once this contract was made Mr. Cade was no longer the agent of the hospital for any purpose. The second contract was between the lady and Mr. Cade, that he should treat the patient for 125 guineas, and this arrangement had nothing whatever to do with the hospital. As far as the hospital was concerned the lady had its leave or licence to go from the front door to the ward and back again, but not to go into the "sister's office." Mr. Cade, as honorary surgeon, had the hospital's licence to go into the "sister's office" with relatives of patients, and when they went with him they went as his licensees. As she was not an invitee the hospital owed her no duty to make the "sister's office" safe for her. Even assuming that she was an invitee, there was no evidence that the hospital had failed to take all reasonable steps to make their premises safe; slippery mats were such an ordinary danger that to treat the under-side of this one specially would have been a precaution beyond the bounds of "reasonable steps." As Mr. Cade's licensee she was admittedly also the hospital's, and could claim protection from hidden and unusual dangers, but the mat was not a hidden or unusual danger, because everyone knew that mats slid on polished floors.

Mr. F. Van Den Berg, K.C., and Mr. Gilbert Paull were not required to answer.

Lord Justice Slesser, in his judgement, held that the lady was an invitee, because her purpose in going to the hospital—namely, to visit her son and to consult with Mr. Cade—was a purpose in which she, Mr. Cade, and the hospital all had a common interest. If the hospital had not held out to her facilities for visiting her son and consulting Mr. Cade she would not have booked the private ward. It was reasonable that she should consult with the surgeon in private, and that she should do so was clearly part of her arrangement with him and the hospital; she therefore went to the "sister's office" as an invitee of the hospital, and the hospital owed her a duty to take reasonable steps to make the room safe. There existed a danger of which the hospital ought to have known, and the learned judge was quite right in saying that if the hospital chose to put mats down on that highly polished floor it ought to take some precaution to prevent them from slipping—for example, by fixing a band of rubber at each end. The hospital had taken no such precaution. The appeal must be dismissed.

Lord Justice Scott agreed, but Mr. Justice Eve dissented; he considered that the lady was not an invitee in the "sister's office," but only a licensee, and was therefore not entitled to damages. He did not, however, develop his reasons for this contrary view, but merely added that, inasmuch as Mr. Justice Horridge and his two learned colleagues in the Court of Appeal thought otherwise, he fully recognized that he must be mistaken.

The Services

HONORARY PHYSICIANS TO THE KING

Lieut.-Colonel R. N. Chopra, C.I.E., I.M.S., has been promoted to brevet-colonel and appointed Honorary Physician to the King, vice Major-General Sir Robert McCarrison, C.I.E., I.M.S., retired pay.

Colonel E. W. C. Bradfield, C.I.E., O.B.E., I.M.S., has been appointed Honorary Physician to the King, vice Major-General H. R. Nutt, I.M.S., retired pay.

Lieut.-Colonel A. A. C. McNeill, I.M.S., has been promoted to brevet-colonel and appointed Honorary Physician to the King, vice Colonel H. E. Stanger-Leathes, I.M.S., retired pay.

The King has granted Colonel P. H. Mitchiner, T.D., M.D., M.S., F.R.C.S., authority to wear the Insignia of the Second Class of the Order of St. Sava conferred upon him by the King of Yugoslavia in recognition of valuable services rendered by him.

DEATHS IN THE SERVICES

Surgeon Captain Charles Geekie Matthew, R.N. (ret.), died at Craigmakerran, Perthshire, on January 11th. He was educated at Edinburgh University, where he graduated M.B. and C.M. in 1885. Entering the Navy soon after, he attained the rank of surgeon commander on February 21st, 1905, and retired with an honorary step as surgeon captain on October 19th, 1918. As surgeon of H.M.S. *Sparrow* he took part in the bombardment and capture of the palace of the Sultan of Zanzibar on August 27th, 1896, by the squadron under Rear-Admiral H. H. Ranson, C.B., and received the African medal. He also served in the war of 1914–18.

Surgeon Captain Henry Bullen Beatty, R.N. (ret.), died on January 21st. He was educated at the Carmichael School in Dublin, where he won the Mayne scholarship and took the L.R.C.S.I. in 1883 and the L.R.C.P.I. in 1884. Entering the Navy soon after qualifying, he became fleet surgeon on August 20th, 1901, and retired as surgeon captain on July 19th, 1915. When serving as staff surgeon on H.M.S. *Royalist* he took part in the landing of the British Forces employed in Samoa in March, 1899. He also served in the war of 1914–18. He joined the British Medical Association in August, 1886, so had been a member for almost fifty years.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.—*Part I:* R. E. Alderson (distinction), Sylvia D. Bray, G. Q. Chance, W. J. Craig, I. T. Dickson, I. Eban, N. G. Gadekar, V. R. Ginde, Mary C. Leishman, R. B. Mehta, A. N. Nanda, L. D. Pringle, A. M. Rackow, A. I. Silverman, A. C. Sinclair, Edith H. Smith, Florence L. Telfer, W. Tennent (distinction), D. A. Wilson.

UNIVERSITY OF LONDON

At a meeting of the Senate on January 29th it was resolved that the University Chair of Dietetics, tenable at St. Thomas's Hospital Medical School until September 30th, be transferred to University College Hospital Medical School for a period of five years from October 1st.

Mr. H. L. Eason has been reappointed representative of the University on the General Medical Council, and Professor W. W. Jameson appointed representative of the University at the forty-seventh Health Congress and Exhibition of the Royal Sanitary Institute, to be held at Southport from July 6th to 11th.

Applications for grants from (1) the Dixon Fund, for assisting scientific investigations, and (2) the Thomas Smythe Hughes and Beaverbrook Medical Research Funds, for assisting original medical research, must be sent in between April 1st and May 15th. Particulars can be obtained from the Academic Registrar.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council, held on February 14th, the resignation of Dr. R. T. Cooke of the post of Junior Assistant Bacteriologist was accepted with regret and the thanks of the Council were accorded Dr. Cooke for his services to the University.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An ordinary Council meeting was held on February 13th, when the President, Sir Cuthbert Wallace, was in the chair.

The Council approved an Address of Condolence to His Majesty King Edward VIII and to Her Majesty Queen Mary on the death of King George V.

It was decided that the Hunterian Dinner, which could not be held this year, should take place on February 15th, 1937.

The Hallett Prize for December, 1935, was presented to Robert Sutherland Lawson of the University of Melbourne.

The Council accepted with grateful thanks the offer by the *British Journal of Surgery* of one thousand guineas to be expended in research work in surgery, and gave permission for the erection in the College of a tablet to record the services of Lord Moynihan to surgery and to the journal.

It was reported that Professor Einar Key of Stockholm had accepted the Honorary Fellowship of the College, and that he would attend the meeting of the Council on June 11th to be admitted.

Mr. R. E. Kelly, C.B., was reappointed as the representative of the College on the Court of the University of Liverpool for three years.

Sir Holburt Waring was appointed to represent the College at the Congress of the Universities of the Empire to be held at Cambridge in July.

The Council passed a vote of condolence on the death of Sir Charles Alfred Ballance, K.C.M.G., C.B., M.V.O., a past Vice-president and Examiner of the College.

The following hospital, with the post specified, was recognized under Sections 21 and 23 of the regulations relating to the education and examination of candidates for the Diploma of Fellow: Croydon General Hospital, resident surgical officer and first house-surgeon.

Diplomas

Diplomas of Fellowship were granted to Theodor Anton Green and Josephus Corbus Luke.

Diplomas of Membership were granted to S. Alankaram and to the 140 candidates whose names were given in the report of the meeting of the Royal College of Physicians of London, published in the *Journal* of February 8th at page 291; as were the names of the eight candidates who have been granted Diplomas in Public Health and the names of the eight candidates who have been granted Diplomas in Anaesthetics.

Diplomas in Medical Radiology were granted, jointly with the Royal College of Physicians, to E. W. Casey and F. Ellis.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a recent meeting of the Council the following were promoted to the Fellowship of the College:

J. R. S. G. Beard, A. E. Chisholm, J. F. Cunningham, Constance E. D'Arcy, E. C. Fahmy, Margaret Fairlie, J. Gardner, R. L. Impey, R. A. Lennie, Hilda N. Lloyd, R. E. Magarey, J. Chassar Moir, W. F. Rawson.

INTER-COLLEGIATE SCHOLARSHIPS BOARD

The London Inter-Collegiate Scholarships Board announces that an examination for twelve medical scholarships and exhibitions, of an aggregate total value of £1,418, will commence on May 11th. They are tenable at University College and University College Hospital Medical School, King's College and King's College Hospital Medical School, the London (Royal Free Hospital) School of Medicine for Women, the London Hospital Medical College, and St. George's Hospital Medical School. Full particulars and entry form may be obtained from the secretary of the Board, Mr. S. C. Ranner, M.A., at King's College Hospital Medical School, Denmark Hill, S.E.5.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The Voluntary Hospitals (Paying Patients) Bill was read a third time by the House of Lords, without debate, on February 13th, and was sent to the House of Commons.

Second readings were given by the House of Commons on February 13th to the Bury and District Joint Hospital District Bill, the South Staffordshire Joint Small-pox Hospital District Bill, and the North-East Lindsey Joint Hospital District Bill.

Mr. S. P. Viant has secured first place, on February 26th, for a resolution calling attention to the university franchise.

The St. Albans Joint Hospital District Bill, the Mid-Sussex Joint Hospital District Bill, and the Bedford Joint Hospital District Bill were read a second time in the House of Commons on February 14th.

The Scottish Education Bill, the continuance of the Milk Marketing scheme, and juvenile training occupied the House of Commons this week.

The House of Lords passed the Hours of Employment (Conventions) Bill.

At the House of Commons on February 17th the Parliamentary Medical Committee re-elected Sir Francis Fremantle chairman, Dr. Howitt honorary secretary, and Dr. Morris Jones honorary treasurer. Captain G. A. S. Elliston and Professor J. Graham Kerr were co-opted to the committee. The committee discussed the forthcoming Midwives and Maternity Bill as effecting control of midwives in London; also its attitude to the Medicines and Medical Appliances Bill, which is due for debate on March 27th, and to the co-ordination of medical services in the Defence Forces. The committee decided to leave to the University Members the making of representations to the Home Secretary about the Poisons Rules.

In the House of Commons on February 11th the Surrey County Council Bill was down for second reading. Objection was taken to the Bill by several members, and the second reading was postponed.

The Government's Milk Policy

On February 17th the House of Commons, in committee, considered the financial resolution necessary for the Bill to amend the Milk Act, 1934.

Mr. RAMSBOTHAM gave details of the progress of the Milk Marketing Scheme, and said it was particularly welcome to the Board of Education because they had for some time been contemplating an intensive drive in the direction of more extended physical education and training for children, which

would also necessitate greater attention to the health of the children to be trained. It was obvious that they could not neglect the provision of better facilities for diet and nourishment for those to be trained. For that reason the action taken under the Act of 1934 to provide cheap milk for children was one of the best ever taken by any Government. The scheme was still in its experimental stage, and there was need in many directions for further investigation. Even if it were possible at the moment to embark on a long-term policy it would still be advisable to operate the milk-in-schools scheme on an experimental basis to remove various difficulties before placing it on the permanent basis on which he trusted it would be placed. By the spring of 1935 the number of children in public elementary schools taking milk had increased to about 2,500,000. If they added the children in grant-aided schools the number to-day was in the neighbourhood of 2,750,000 and the consumption was just on 23,000,000 gallons. There were still, however, about 2,800,000 scholars who were not drinking milk in schools ; that was more than 50 per cent. of the school population. The Government to-day was faced with three alternatives. First, that the provisions of the Act of 1934 should be allowed to lapse. That would be deplorable. Secondly, they might retain the milk-in-schools scheme and terminate the assistance to manufacturing milk, devoting the amount of that assistance to further cheap milk for children. That would severely shake the financial structure of industry by leaving an immense gallonage on the manufacturing market. The Government was therefore left with the third alternative, which he recommended to the committee, and that was that they should continue their action along the lines of the 1934 Milk Act, and extend those provisions in accordance with the financial resolution.

AN ALLEGED SURPLUS OF MILK

Mr. T. JOHNSTON said he could not understand when Mr. Ramsbotham said there must be a further investigation what there was to investigate. The facts were beyond dispute. Men like Sir John Orr had committed themselves to the statements that we could increase the height of our school children by three inches and increase their weight by four to six pounds, and the Leighton-McKinlay experiment in Lanarkshire, though covering only a period of four months, seemed to justify to the full the statements made by Sir John Orr and the other experts who had made this subject their own. We were facing now, in winter-time, 27 per cent. of an alleged surplus, but the Government did not know what to do with it. Considerable sums of money were being provided to convert the surplus into dried milk and condensed milk. It was a remarkable fact that in a land where at least 10 per cent. of our people lived below the British Medical Association's standard of nutrition we raised money to destroy an absolutely essential food. There was a need for supplying liquid milk to the consumers of this country. As a result of prolonged study our nutrition experts had discovered, particularly in the Newcastle area, that 47 per cent. of the children of the poor were below standard weight, that 23 per cent. were anaemic, and that 36 per cent. were unhealthy and unfit. The last report, for 1932, showed that 52 per cent. of the recruits applying for admission to the British Army failed on physical grounds, and that of the 48 per cent. who got through 36.9 per cent. were subsequently rejected on medical grounds.

A League of Nations Committee of experts reported on "The Physiological Bases of Nutrition," and said that there should be at least one litre of milk a day for expectant and nursing mothers, as well as an abundant supply for infant children of all ages and for adolescents. The practice of providing milk, either free or at a reduced price, was highly recommended. The Orr-Lloyd investigations showed that 10 per cent. of our people were not spending 4s. per head on food, yet the British Medical Association's figure was 5s. 10½d. a week as a minimum. There was at least another 20 per cent. just on the border-line of the Association's minimum standard.

INCREASED COST OF MILK TO HOSPITALS

The hospitals, infirmaries, clinics, and Poor Law institutions were in a terrible plight, and we were busily engaged in organizing a policy of increasing the cost of milk to voluntary hospitals, infirmaries, and clinics. At the Royal Hospital for Sick Children in Glasgow the Government's milk policy raised the cost of milk to these poor sick children by £500 a year. The cost to the Royal Infirmary had gone up by £1,000. The jump in the figures for the hospitals of the Lanarkshire County Council was £800 and to the Glasgow Town Council hospitals £12,300. There was something inherently wrong in that. He recognized that it was not a practicable proposal at the moment to ask that milk should be supplied free to the hospitals and institutions, but surely the Minister could make it imperative that the price to be charged for milk should be the pre-milk-order price, that at which they were getting milk before the marketing boards started to raise the price. Then the hospitals and clinics would use more of it.

MINISTER'S REPLY

Dr. WALTER ELLIOT said the Government had to do two things: maintain the milk industry and the production of milk, and secure, so far as they could, the health and upbuilding of the future generation. He welcomed the criticism which had been made about the defects in the milk-in-schools scheme, and he asked the committee for a further extension of time to investigate them. This period of test would be most valuable when they came, as they would within a few months, to frame the long-term policy in this section of agriculture.

Steps had been taken by the Government and the Milk Marketing Board to improve the quality of the milk supply by making a levy on all producers and giving a bonus of 1d. a gallon on all milk which came up to the standard of Grade A ; and in a relatively short space of time they had brought 27 per cent. or more of the milk up to that standard. When the statement was made that the Government should here and now adopt some *ad hoc* method for children, and more particularly for adults, in ensuring the consumption of milk, the committee should consider well before embarking on that step.

Mr. JOHNSTON: Will the right hon. gentleman say a word or two about the position of the hospitals and infirmaries, and the increase that they have been compelled to pay? Dr. ELLIOT said that while he had the utmost sympathy with the desire of those institutions to get their milk supplies at a lower rate, he was afraid he could not concede the main point—that if they got them at a lower rate they would purchase more. As far as the hospitals were concerned, it was exactly that case that he had tried to make again and again, and he had been defeated by the obvious answer that the hospitals would buy as much as was necessary for the needs of their patients, but that no amount of cheap milk would alter the figures. Certainly, if any scheme could be worked out, he would support it forthwith. If not, he was afraid they could not solve the question under this method; they must wait for the long-term measure.

The financial resolution was carried by 213 votes to 140.

The Education Bill

Moving the second reading of the Education Bill for England and Wales on February 13th, Mr. OLIVER STANLEY said the Government, in a manifesto before the General Election, set out its programme in the whole field of education, with medical services and physical training, nursery schools and classes, technical, secondary, and adult education as a coherent whole. For the parts of the programme which were administrative in character he had issued a general circular, and also a circular dealing with physical training. These had been welcomed by those responsible for education. The Bill dealt with the part of the plan which required legislative sanction, including the raising of the school age from 14 to 15 years. This was not to apply to children born before December 1st, 1925. Mr. Stanley explained the provision for exempting children between those ages to take beneficial employment.

Mr. LEES SMITH moved the rejection of the Bill, and said that the Government's election manifesto conflicted with the Hadow Report in saying that children who were below the average might do better if given employment at the age of it. Lord EUSTACE PERCY denied that the Government manifesto said this.

Mr. LECKIE said the year from 14 to 15 was worth two at any other period, for then boys and girls began to think for themselves. Exemptions during that year would strike a vital blow at the aims of educationists. Mr. MORGAN JONES remarked that in London under the Bill 40,000 to 50,000 children would be retained at school. Lord EUSTACE PERCY stated that it was impossible to have the Bill and to wipe out the exemptions. Lady ASTOR said that 95,000 of the children who entered the elementary schools annually were defective in some way, and that 80 per cent. of the school buildings were defective.

The Bill was read a second time by 282 to 152, and was sent to a Standing Committee.

THE HOMEWORK QUESTION

On February 12th the House of Commons rejected a motion proposed by Mr. Alfred Short in favour of State maintenance grants for children remaining at school after the present age. The House on the same evening accepted without a division a motion moved by Mr. E. A. RADFORD that it was undesirable that school children should have their evenings occupied with homework, to the exclusion of rest and recreation. The Board of Education had refused to set up a committee to inquire into the prevalence and incidence of compulsory homework, nor did it dictate the amount of homework which should be set for children. Children sat at their homework long after they ought to be in bed, and he knew of one girl who afterwards constantly talked in her sleep. The medical officer of health for the county of Derby had spoken strongly about homework. There was no harder work for a child than striving at night, when its brain was tired, with subjects it had wrestled with during the day.

Sir ERNEST GRAHAM-LITTLE said fatigue in the mind was a very quick phenomenon in the child. The retention of knowledge depended on the attention given by the child, and that could not be held for any prolonged period. Preparation should be taken at school. Recent medical work had shown how large a part in the development of physical deformity was played by the posture of the child when studying. How was that to be supervised at home? Lighting was also important. The evil of homework was rather worse in the expensive higher schools.

Mr. OLIVER STANLEY said the Board of Education knew of a growing uneasiness among parents regarding homework, and had instituted an inquiry about a year ago. Altogether some 250 secondary schools would be visited, and also all the junior technical schools and some hundreds of elementary schools. There was little sign of this spreading to the elementary schools, and the inspectors of the Department discouraged it. There was already a great mass of information as the result of the inquiries, which were almost complete. He would sift and analyse it, and see what were its lessons and remedies. Homework came down in the long run to the question of examinations, and to the linking of the school certificate with university examinations. Employers who insisted on the school certificate or on matriculation as a standard did no service to the child or to education, or to themselves as employers.

The House then agreed to the motion.

The Poisons Rules

Sir ERNEST GRAHAM-LITTLE asked, on February 12th, whether, in view of the variety of interpretations given to it, the Home Secretary would state what was the precise meaning to be attached to the word "manufacture" as used in Rule 29 of the Poisons Board Rules issued in December, 1935. He further asked whether the word "manufacture" covered the processes of compounding and dispensing medicines containing poisons and used for the treatment of internal human ailments. Mr. GEOFFREY LLOYD replied that Rule 29 had been made under Section 23 (1) (*i*) of the Pharmacy and Poisons Act, 1933, which gave power for rules to be made "for requiring persons in control of the manufacture of pharmaceutical preparations containing poisons to be registered chemists or persons possessing the prescribed qualifications in chemistry." Mr. Lloyd said it seemed clear to him that the word "manufacture," both in the Act and in the Rule, denoted only the operations carried on in the factories by manufacturers, and did not cover such operations as the compounding and dispensing of their own medicines by medical practitioners.

It was understood by the Parliamentary Medical Committee that Sir John Simon would receive a deputation of University members on February 19th about Rule 29.

Lax Certification and Inaccurate Dispensing

Sir PERCY HURD asked, on February 13th, if the attention of the Minister of Health had been called to cases in Wiltshire in which doctors had issued certificates without seeing the patients, and chemists had issued deficient prescriptions to members of approved societies, and what action the Wiltshire Insurance Committee and the Ministry of Health respectively had taken in these cases. Sir KINGSLEY WOOD answered that in the last three years one case of a doctor who had issued certain certificates without seeing the patient, and six cases of chemists whose dispensing of test prescriptions was found to be inaccurate, had been reported by the Wiltshire Insurance Committee. The doctor's case had not yet been decided. As to the chemists, in four cases sums varying from 5s. to £2 had been withheld as recommended by the committee, and in the other two cases sums of £1 and £2 had been withheld without any such recommendation.

Gas and Oxygen Anaesthesia

Sir KINGSLEY WOOD told Mr. Edward Dunn on February 13th that he knew of no statistics which showed the difference in the mortality rate where gas and oxygen were used as the anaesthetic as against the use of chloroform and ether in municipal and voluntary hospitals. Certain information in regard to deaths during or connected with the administration of anaesthetics of all kinds was contained in the Text Volume of the Registrar-General's Statistical Review for the year 1933. Information was not available to show in what number of municipal hospitals and voluntary hospitals respectively gas and oxygen was used as a routine anaesthetic for major operations and for midwifery.

Deaths from Pyramidon Poisoning

Sir JOHN SIMON, answering Mr. G. R. Hall-Caine on February 13th, said his attention had been called to the increase of deaths by poisoning due to pyramidon. Under the Poisons List and Rules, which were to come into operation on May 1st, this drug, more correctly described as amidopyrine, would be scheduled as a poison, and its sale to the public would be unlawful except on medical prescription.

Nutrition: League of Nations Report

Mr. GEOFFREY MANDER inquired, on February 13th, whether Mr. Oliver Stanley had considered the report of the League of Nations Health Organization on diet and health, and what action on it the Board of Education proposed to take. Mr. STANLEY, in reply, assumed Mr. Mander referred to the report on the physiological bases of nutrition made by the Technical Commission appointed by the Health Committee of the League of Nations. The Board of Education agreed with the recommendation of the Commission regarding the provision of milk for children. The practice of providing milk free or at a reduced price recommended by the Commission was in operation in England and Wales, and arrangements were also frequently made by local education authorities for the provision of cod-liver oil. The recommendations of the Commission as to the need for variety in diet and on the importance of fresh vegetables and fruit were borne in mind by the Board's medical officers in investigating the dietary at feeding centres and in residential schools.

Answering Mr. G. Mathers on February 13th, Sir KINGSLEY WOOD said that in accordance with a resolution adopted by the Assembly of the League of Nations on September 27th,

1935, the United Kingdom Government had been approached to give particulars of the measures taken in this country for securing improved nutrition. A memorandum giving the desired information had been prepared by the Ministry of Health in collaboration with other departments and had been sent to the League of Nations.

Mr. TOM JOHNSTON asked, on February 13th, the reason for the delay in publishing the report of the Market Supply Committee on its investigation of food consumption at different income levels. Dr. ELLIOT denied that there was any report of the Market Supply Committee dealing with this question. The secretary of the Committee in a private capacity had given a survey of existing statistics on the subject before the Agricultural Economic Society last December, and this would be published.

Vaccination

In an answer to Mr. Groves on February 14th Sir KINGSLEY WOOD said eight deaths were registered in the year 1935 as due to vaccination. Neither vaccinia nor vaccination was mentioned as a cause of death in any other medical certificate. The ages of the persons concerned were 3 weeks, 1 month, 1 month, 2 months, 4 months, 7 months, 17 years, and 50 years respectively. No deaths from small-pox were registered in England and Wales in 1935.

On the same date Mr. GROVES asked for what period public primary vaccination could be regarded as providing an effective protection against small-pox; and how frequently the operation should be repeated in order to maintain such protection. Sir KINGSLEY WOOD replied that the Vaccination Order to which the question referred was issued to give effect to recommendations of the Committee on Vaccination, whose report was published in 1928. One of these recommendations was that primary vaccination should be performed in infancy between the ages of 2 and 6 months, and that revaccination should be offered when the child enters school (5 to 7 years), and again on leaving (14 to 16 years). Therefore the view of the committee was that the duration of immunity following primary vaccination was at least five years, and that the operation should be repeated on two occasions.

Sir KINGSLEY WOOD stated, on February 14th, that rabbits were still used in the Government lymph establishment in the production of the supplies of calf lymph issued to public vaccinators. These rabbits were born and reared on the premises, and used at the age of 3 to 4 months. There was therefore ample opportunity for observing their condition. Mr. GROVES asked what measures were adopted to secure that the rabbits used were not suffering from spontaneous encephalitis. Sir KINGSLEY answered that there was no affinity between the encephalitis of rabbits and post-vaccinial encephalitis. On the same date Mr. WM. LEACH asserted that in the opinion of certain vaccination experts the use of rabbits was probably the cause of the cases of post-vaccinial encephalitis which had followed the use of such lymph in recent years. Sir KINGSLEY WOOD, in reply, said there was no valid evidence to suggest that the use of rabbits in the preparation of lymph had any influence on the occurrence of post-vaccinial encephalitis. Mrs. TATE then declared that the transfer of vaccine from calves to rabbits changed its nature and increased its virulence. Sir KINGSLEY WOOD said he was not aware of this, but would consider evidence which Mrs. Tate promised to send.

Tuberculosis Research

Replying, on February 17th, to Mr. Acland, Dr. ELLIOT said that research on bovine tuberculosis had been in progress for some years at the Institute of Animal Pathology, Cambridge, and, to some extent, at the Ministry's Veterinary Laboratory and at the National Institute for Research in Dairying at Reading. It was not possible to give a precise figure of the sums expended, which formed part of the general expenditure of the institutions named. Since 1934, however, in consultation with the Agricultural Research Council, special grants had been made to extend the work at Cambridge, amounting to £375 in the year ended March 31st, 1935, and £5,320 in the year ending March 31st next. The subjects of the investigation were the use of B.C.G. vaccine and of tuberculin, and the work was still in progress.

British Personnel of Red Cross in Ethiopia.—On February 12th Mr. EDEN said nineteen British subjects were serving in the British Red Cross Hospital and other ambulance units, foreign and national, in Ethiopia. The Italian Government had been officially notified through the British Embassy in Rome of the sphere of action of the British Red Cross unit now operating with the Ethiopian forces on the northern front.

Illegibility of Doctors' Writing.—Colonel MOORE asked on February 13th whether, in view of recent disclosures at coroners' proceedings that doctors wrote prescriptions so illegibly that in many cases the address and signature were indecipherable, and of the serious developments to which such practices gave rise, especially in the issue of drugs, the Home Secretary would consider action to ensure that prescriptions should not be dispensed unless easily legible. Sir JOHN SIMON said he had no information that would lead him to suppose that the practice referred to was prevalent or had been productive of any harm to the public. There were various legal requirements in regard to the dispensing of poisons and dangerous drugs which seemed to provide such safeguards as might be necessary.

The Certified Insane.—Sir KINGSLEY WOOD furnished Mrs. Tate on February 13th with a statement of the numbers of persons per 10,000 of the population who were certified insane—that is to say, admitted under reception orders—as follows: 6.15 in 1900, 5.96 in 1920, 5.29 in 1930, and 4.85 in 1934. He added that the figure for the year 1935 was not yet available.

Provision of Ambulances by Local Authorities.—Mr. BARTLE BULL asked on February 13th under what circumstances the ambulances of local authorities were permitted to be used for the conveyance of sick persons not suffering from any infectious diseases, as well as for cases of acute surgical and medical emergency. Sir KINGSLEY WOOD replied that a local authority which had provided an ambulance for the conveyance of persons suffering from infectious disease had power to use it for the conveyance of other sick persons with suitable precautions. Mr. BULL asked whether the attention of the Minister had been called to the absence of such permission in Enfield. Sir KINGSLEY said the power of providing ambulances for infectious disease vested in the joint hospital board, and not in the urban district council. The council was considering means of getting over this difficulty. The Departmental Committee on the Consolidation of the Law relating to Local Government and Public Health had considered the question of the provision of ambulances by local authorities, and recommended a simplification of the law.

Preventive Measures in Anthracite Fields.—Mr. DANIEL HOPKIN inquired on February 13th what steps had been taken since the conference in June, 1934, with the then Secretary for Mines to reduce the risks of contracting silicosis in the South Wales anthracite area; what practical measures had been approved; and what new devices had been tried since that conference. Captain CROOKSHANK said that since the conference there had been effected in this area an extended use of the available measures for suppressing dangerous dust. These measures included approved dust traps for power drills, water-feed drills, and improved ventilation of headings and other confined spaces. Simultaneously, active steps had been taken to improve and to simplify available preventive methods and to develop new methods, notably an effective dust respirator, an electric drill which produced very little fine dust, and a mist or spray projector to deal principally with the dust raised by shot-firing. Progress had been made and the work continued.

Medical Examination in Silicosis Cases.—On the same day Mr. HOPKIN asked Sir John Simon to expedite the procedure for examination of men suffering from silicosis before the Medical Board. Sir JOHN SIMON replied that the desirability of applications being dealt with as expeditiously as inquiries and examinations permitted was fully appreciated by the Home Office and the Medical Board. The headquarters of the panel of the Board dealing with South Wales cases was moved towards the end of 1935 from Bristol to Cardiff. He would be glad to consider particulars of cases in which delay was alleged. No complaints from miners in the South Wales anthracite district about delays in certification or general unsatisfactory working of the Silicosis Orders had been received recently by the Home Office.

Medical News

Sir Thomas Barlow was elected foreign Associate Member of the French Academy of Medicine on February 4th.

Mr. A. E. Porritt will give an address on "Historical Surgical Operations," before the St. Mary's Hospital Medical Society, on Wednesday, February 26th, at 8.30 p.m.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Wednesday, February 26th, at 2.30 p.m., when a paper on "Experimental Psychoses induced by Mescaline," will be read by Dr. E. Guttmann.

A meeting of the Medical Section of the British Psychological Society will be held at the Institute of Medical Psychology, Malet Place, W.C., on Wednesday, February 26th, at 8.30 p.m., when Miss Margaret Ashdown will read a paper on "The Role of the Psychiatric Social Worker," followed by a discussion to be opened by Dr. W. J. T. Kimber and Dr. William Moodie.

The London Section of the Society of Chemical Industry will hold a joint meeting with the London and South-Eastern Counties Section of the Institute of Chemistry at Burlington House, Piccadilly, W., on Monday, March 2nd, at 8 p.m., when Dr. T. A. Henry will give an address on "The Chemotherapy of Malaria."

A course of post-graduate lectures and demonstrations opened at Ancoats Hospital, Manchester, on February 20th, and will be continued on Thursdays at 4.15 p.m. to March 26th, and on April 2nd there will be a clinical meeting. There is no fee for the course, to which all medical graduates and senior students are invited. In addition post-graduate clinical teaching will be given by the honorary staff of the hospital every Thursday at 11 a.m. during Hilary Term as part of the post-graduate scheme of the University of Manchester.

The Fellowship of Medicine announces that surgical tutorial classes will be given at the National Temperance Hospital, at 8.30 p.m., on February 25th and 27th, and March 3rd, 5th, and 10th. A course of lecture-demonstrations for Primary F.R.C.S. candidates will be held at the Infants Hospital on Mondays, Wednesdays, and Fridays at 8 p.m. An advanced course in thoracic surgery will be given at Brompton Hospital from February 24th to 29th. M.R.C.P. courses will be given as follows: chest and heart diseases at Royal Chest Hospital, Mondays, Wednesdays, and Fridays, at 8 p.m., from March 16th to April 4th; chest diseases at Brompton Hospital, twice weekly at 5 p.m., from March 8th to April 4th; clinical and pathological demonstrations on Tuesdays and Thursdays, at 8 p.m., at National Temperance Hospital, from February 25th to March 12th. A course in orthopaedics will be given at Royal National Orthopaedic Hospital, from March 9th to 21st. A special M.R.C.P. course will be given at West End Hospital for Nervous Diseases, from March 2nd to 27th, at 2 p.m. daily. Week-end courses, specially suitable for general practitioners, will be given as follows: chest diseases at Brompton Hospital, March 7th and 8th; clinical surgery at Royal Albert Dock Hospital, March 14th and 15th; medicine at Miller General Hospital, March 21st and 22nd; and urology at All Saints' Hospital, March 28th and 29th. Detailed syllabuses of all courses can be obtained from the Fellowship of Medicine, 1, Wimpole Street, W.

The lecture to be given at the National Hospital for Diseases of the Heart, Westmoreland Street, W., by Dr. Evan Bedford, announced for March 17th, has been postponed until May 5th.

The French Society of Sanitary and Moral Prophylaxis founded by Professor Alfred Fournier in 1901, in conjunction with the French National League against the Venereal Peril and the French Society of Serology and Experimental Syphilis, has organized a congress beginning on March 12th, at the Institut Fournier, Paris, in commemoration of the thirtieth anniversary of the first researches of Metchnikoff and Roux on individual protection against syphilis. The subscription for non-members of the three societies is 50 francs. Further information can be obtained from Dr. Sicard de Plauzoles, Institut Fournier, 25, Boulevard Saint Jacques, Paris, 14e.

The German Society for Internal Medicine will hold a course at Wiesbaden from March 23rd to 26th, under the presidency of Professor Schwenkenbecher, the subjects being: the internal treatment of thyrotoxicosis, the electrocardiographic diagnosis of disease of the cardiac muscle, inhalation diseases of the lungs, inflammatory affections of the large intestine, radiological diagnosis of cavities, and the sequels of ray therapy, with special reference to the internal organs and the gastro-intestinal system. The last three topics will form the programme of joint sessions with the German Radiographical Society.

A medical tour to Morocco will take place at Easter. A boat will leave Marseilles on April 4th and return to that port on the 21st. The cost of the tour will be 3,885 francs. Further information can be obtained from Section des Voyages de Bruxelles-Médical, 29, Boulevard Adolphe Max, Bruxelles.

The Minister of Pensions has appointed Dr. Michael Abdy Collins, O.B.E., to the post of mental inspector to the Ministry.

The Washington correspondent of the *Times* records the presentation to Dr. John M. P. Finney of a copy of Rudyard Kipling's poem "If" signed by its author shortly before he died last month. Dr. Finney was chief surgical consultant to the American Expeditionary Force during the great war. The presentation took place at a banquet in Baltimore to commemorate his devoted service to surgery and civic affairs during nearly half a century.

Hofrat Dr. Ferdinand Hueppe, formerly professor of hygiene at Dresden and the German University at Prague, celebrated the sixtieth anniversary of his graduation on February 11th. He is honorary doctor of the University of Aberdeen, honorary senator of the Technical University of Dresden and the Imperial Leopold Caroline German Academy of Halle, and honorary member of numerous important German and foreign medical societies.

The *Nederlandsch Tijdschrift voor Geneeskunde* contains illustrations of eighteen postage stamps figuring celebrated doctors, including Imhotep, Boerhaave, Haller, Schiller, Semmelweis, Calmette, and Ramon y Cajal.

The issue of *Münchener medizinische Wochenschrift* for February 7th is devoted to sport medicine, and the issue of the *Journal de Médecine de Bordeaux et de Sud-Ouest* for January 30th to hydrology. The issue of *Le Bulletin Médical* for January 25th is devoted to fractures.

The three principal Italian medical journals, *Il Policlinico, La Riforma Medica,* and *Minerva Medica,* are now being offered for a combined annual subscription of 150 lire for Italy and 270 lire for foreign countries. The issue of *Il Policlinico* (Sez. Pratica) for February 10th expresses sympathy with its British colleagues on the death of King George V, who, it declares, was a true friend of Italy.

A committee, consisting of numerous men of letters and doctors, has been formed to offer a sword of honour to Dr. Georges Duhamel on the occasion of his election to the French Academy. Subscriptions may be sent to *Le Figaro,* Rond-point des Champs-Elysées, Paris.

Professor F. de Quervain, the eminent surgeon, has been elected rector of the University of Berne. He is a Foreign Corresponding Member of the British Medical Association.

Three streets in Paris have recently been renamed after French medical men—namely: Grancher, the paediatrist; Déjerine, the neurologist; and Emile Roux, the late director of the Institut Pasteur.

The Cancer Research Society of Japan has awarded its annual prize for 1935 to Dr. P. Yoshida of the Sasaki Institute for his successful production of tumours in the liver. His experiments on 300 black rats will be published shortly.

Dr. René Sand of the University of Brussels and technical adviser to the League of Red Cross Societies has been made an Officer of the League of Honour.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

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QUERIES AND ANSWERS

? Idiosyncrasy to Nitrous Oxide

Dr. MYLES MITCHELL (Yeovil) writes: I administered N_2O and O_2 to a boy aged 6 years for a dental extraction. He took the gas under protest, but there was nothing noteworthy about the induction. Immediately after the extraction, however, he became pale, pulseless, and flaccid, and his respiration ceased. After a few seconds he gave a sudden deep inspiration, followed by another about thirty seconds later, when his colour and pulse returned. The respiration remained slow and irregular for possibly fifteen minutes, when he passed into a state resembling recovery from a general anaesthetic. He continued thus for an hour with his eyes closed. He then opened his eyes, and the pupils were found to be widely dilated, and there was no reaction to light. He continued thus for a further forty minutes, waving both arms as though actively resisting something. He then passed into a sound natural sleep, out of which he wakened about an hour later. Once awake he seemed very frightened, but was otherwise normal. I should be interested to hear if anyone has had a similar experience, and, if so, whether any explanation could be provided for it. I might add that several other patients were given gas from the same cylinder before this case, and without any untoward results.

General Pruritus

Dr. A. HAWKYARD (Leeds) writes: I have a woman patient, aged 50, a sufferer from an intolerable itching of the skin all over the body. I have tried everything in the shape of internal and external remedies with no benefit. There is no skin eruption, but the patient has suffered from poliomyelitis since infancy. Can any member give a helpful hint?

Parenteral Bismuth

"M.D." asks for information as to the efficacy of parenteral bismuth therapy for multiple cutaneous warts, and of the most suitable bismuth preparation and dosage, etc., for such cases.

Income Tax

Purchase of Practice with Book Debts

A. purchases a practice from B. and C., taking over book debts to the nominal amount of £1,171 at £800 cash. At the end of his first year the gross income of the practice is calculated as follows:

	£
Cash collected	486
Add Debts due at end of year	1,741
	£2,227
Less Debts due at beginning of year	1,171
Gross income	£1,056

The income tax inspector contends that the amount of £800 should be substituted for £1,171, which increases the gross income to £1,427. We understand that this is the considered official view, and that if A. appeals successfully to the Commissioners he might be faced with an appeal to the High Court.

*** The £1,427 seems clearly excessive, because it results from comparing two unlike factors—the *value* of the debts at the beginning with the *nominal amount* at the end of the year. A reasonable basis of settlement would seem to be for the debts, totalling £1,741, to be carefully examined, and a statement made of their value as at the end of the year. The result of a calculation based on that figure would at any rate be equitable, and probably would not differ very much from that shown above. An alternative line of approach would be to contend that the debts taken over are irrelevant—that is, that A.'s legal basis of assessment is the value of the bookings of A.'s work only, seeing that he is assessable as a medical practitioner only; but that might involve a prohibitive amount of work in excluding cash receipts and debts arising out of the old practice from the accounts. The difficulty A. is under in putting his computation forward is that so far as he is concerned the amount of £1,171 did not arise from his services, and the £800 is in fact the amount that those debts cost him. On the whole, we advise a settlement on the basis of bringing down the £1,741 amount to the sum it was really worth at the end of the year.

LETTERS, NOTES, ETC.

Newcastle Hospitals

The Secretary-Superintendent of the Middlesex Hospital writes: My attention has been drawn to a serious inaccuracy in a statement on the rating of hospitals made to our last Court of Governors. In a comment upon the wide variation in assessments throughout the country the Newcastle hospitals were cited as among those which were either not rated or were subsidized by municipal authorities. This is not the case. My board regret that this unfortunate slip has caused trouble to the management of the Royal Victoria Infirmary, and would be grateful if you would publish this correction.

The Car in Winter: Precaution Against Frost

During the recent spell of cold weather many instances of damage to cars as a result of frozen water in the cooling system have been brought to the notice of the Automobile Association. It is not generally known by motorists that the installation of a thermostatic control—which is a feature becoming popular on the modern car—increases the risk of freezing and actually makes it possible for ice to form in the radiator during the early stages of a journey. A thermostat delays the circulation of water between the radiator and the engine and thus allows the cold air a longer period in which to take effect; this makes it almost imperative to add a suitable anti-freezing mixture to the water to reduce the freezing point during cold weather. The engineering department of the A.A. will gladly advise members of the preparations most suitable for their particular cars.

Disclaimer

Dr. LESLIE HOYLE writes from the Department of Bacteriology and Preventive Medicine, University of Manchester: I beg to disclaim responsibility for certain articles about myself and my work on influenza which have appeared in the lay press. Since my appointment as Royce Research Fellow I have been subjected to almost continuous persecution by the Press. On several occasions, when interviews have been refused them, representatives of the Press have attempted to obtain information from my wife, parents, and other relatives. In self-defence I recently consented to give an interview to a certain newspaper on the understanding that I should be informed of the nature of the resulting article. I was subsequently shown a proof, which I edited, but 90 per cent. of the matter which subsequently appeared was not contained in the proof. The name of Dr. C. H. S. Harris has also appeared in connexion with these articles entirely without his consent.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 45, 46, 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 88.